

JPRS 77453

25 February 1981

Near East/North Africa Report

No. 2272

EGYPT: INFORMATION ON THE MILITARY INDUSTRIES



FOREIGN BROADCAST INFORMATION SERVICE

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PROGRESS IN WAR INDUSTRIES DISCUSSED

Interview With Production Minister

Cairo AKHIR SA'AH in Arabic 8 Oct 80 pp 36-37

[Interview With Engineer Jamal-al-Din al-Sayyid Ibrahim, Minister of State for War Production, by Ishaq Ibrahim]

[Text] More than a quarter century ago, our country witnessed the birth of a new and strong industry which deserves a long pause because it has a long history and because it reflects truly the degree of our development and of our civilized approach to life, namely the war industry.

What does this industry mean to our life in time of war and of peace? What is its role now that peace has been established in the area?

What has it accomplished and what has it produced in the preceding period?

Engineer Jamal-alDin al-Sayyid Ibrahim, the minister of state for war production, reveals to us in this interview for the first time important secrets concerning an industry of which we have not been aware and to which we have not given much attention even though it is the mainstay for numerous other industries.

We only hear of the war factories through their well-known and high-quality production of butane gas [cylinders], refrigerators, ovens and fans. But is this all insofar as the war factories are concerned? Do butane gas, ovens and fans constitute their entire production?

There is no doubt that most people don't know that the war factories:

Produce the high-tension cables that supply all parts of the republic with the High Dam electricity.

Performed the role set for them in meeting the requirements of the armed forces throughout the glorious October battles until we achieved victory.

They have begun to enter the spheres of the green revolution, food security and housing by embarking on and specializing in the production of irrigation equipment and pumps to enlarge the cultivable area in the country.

In the sphere of food security, the war factories cooperate with the Ministry of Supply in the project to manufacture automatic bakeries locally. These factories are also cooperating in solving the housing problems by expanding the production of modern water and electricity meters.

Starting with this content and these concepts, I began my interview with Engineer Jamal-al-Din al-Sayyid Ibrahim, the minister of state for war production. My first question called for a review aimed at familiarizing people with the early beginnings of setting up a modern Egyptian war industry. I said to the minister:

[Question] How did the war factories begin their work and what was the general framework of their production policy at the outset of the industrialization period?

[Answer] So that people may not forget these facts, I must stress here that the real thinking of setting up a war industry in Egypt started in 1948 immediately after the Palestine war or, in other words, in the wake of the damaged weapons and ammunition issue. This is why we find that one of the basic goals of setting up this industry is to produce all kinds of munition 100 percent locally and with Egyptian hands, in addition to producing small weapons such as rifles, machineguns and pistols.

I will again say that with the onset of the July revolution, measures were expedited to conclude contracts to set up these plants rapidly and with long strides.

(After moments of silence, the minister added): To secure this industry, other industries supporting it had to be set up. This did actually take place and specialized metal and chemical industries were set up to supply the semi-processed requirements of the war industry, such as iron and other alloys, chemicals, explosives and other propelling materials used in munitions.

In the 1950's--1954-55--the small munitions industry made a good start and was able to develop itself with the change of the armed forces' armament from western to eastern weapons. Eastern-caliber weapons were produced in 1956. As for medium-size munition, its production started in 1955-56. The war factories then produced heavy ammunition and small weapons in 1958-59. Thus, it can be said with total honesty that the war plants realized the goal for which they were set up in the early period.

Civil Production Is Necessary

[Question] As long as war production did realize its objectives successfully, as you have mentioned, then why was thought given to setting up civil plants inside our war factories and what was the atmosphere or the conditions that led to our war factories' participation in civil production?

[Answer] At the outset, the war industries were set up as factories controlled by the then Ministry of War. In the first phases of this industry, the objective receiving the major attention was that of securing the technical components for the establishment, steadfastness and continuity of this industry, considering that the armed forces' needs are large and constant. The factories were managed by a

board of directors of the Ministry of War until 1956 and then by a public authority with a budget independent of that of the Ministry of War. The authority was then turned in 1961 into an organization with an economic character called the General Organization for War and Civil Factories. This organization transformed its factories into companies or economic units producing both war and civil goods.

The main reason for introducing a civil industry into the war industry was to establish an economical war industry base that is not affected by the rise or fall of war production according to certain circumstances and so as to provide the war industry with the technical and economic elements of survival and continuity in freedom from the fluctuations of military loading.

Meeting Market Needs!!

AKHIR SA'AH goes on to present a picture of the war plants, to review their products in details and then to embark on an objective discussion with Jamal-al-Din al-Sayyid Ibrahim on the need for some commodities produced by the war plants and lacking in the local market. I heard the minister explain the plants' production in detail and say:

Everything in these plants works for the defense of the homeland and for the service and welfare of the Egyptian citizen. The plants produce dynamite and explosives, as well as synthetic fat [masli sina'i]. The plants produce sewing machines, knives, scissors and house furniture, as well as guns and bullets for the armed forces.

Thus, wherever your imagination goes, be it to a house, factory, hospital, office or a university, you will undoubtedly find a civil product of the war plants. For example, even fans, gas ovens, colored and black and white television sets, closed circuit television, meat grinders, scales, gas cylinders and pressure cooking pots are manufactured by the war plants which produce basically all that is required to defend every home and every family.

[Question] I have learned that there is high demand for the 5-liter [gas] oven which has not been available in the markets for sometime. What is the solution?

[Answer] The 5-liter oven is actually in demand and I am aware of how much the people need it. This is why I have asked that the production line for this oven be put into operation. We will supply nearly 3,000 units of this kind in the first months of next year.

[Question] There is also a waiting list for the (Kalvinator) refrigerators which are also in demand in the market. How can the people's demand for this refrigerator be met?

[Answer] We have decided to raise refrigerator production form 7,000 to 10,000 units this year so as to reduce the demand for them.

[Question] The price of the fans produced by the plants used to be affordable to the masses. But this year, this price was raised from 28 pounds to 43 pounds per fan. Moreover, the quantities supplied to the market are small. What is the reason?

[Answer] Fan production amounts to nearly 25,000 fans annually. Naturally, the shortage in the market must be made up for by the import companies so as to meet the people's needs.

As for the price increase, it is connected very closely with the sharp increase in the prices of the raw materials and elements going into the production of fans.

In Phase of Peace

(I asked Minister Jamal-al-Din al-Sayyid Ibrahim who is 52 years old):

[Question] Under the canopy of the phase of peace, has there been a reduction in war production and an increase in civil production and does this policy affect, even temporarily, the economics of operating the plants and of technical training in them?

[Answer] The fear of a drop in war production under the canopy of the phase of peace is unjustifiable by evidence of the fact that the ministry seeks to increase war production in the next phase and to strengthen international cooperation in this sphere. To be specific, the development in war production will be qualitative. This may result in a limited and temporary drop in war production. But the means to deal with the economic aspects are available and under our control, God willing.

Egyptian-U.S. Cooperation

(One of the important questions required a frank answer jumps to my mind).

[Question] In the wake of the phase of peace, in what are the responsibilities of the war plants embodied at present?

[Answer] (The minister answers this question with the signs of seriousness and interest appearing in his face):

The war plants shoulder a heavy responsibility at present in the sphere of armament. I will be devulging no secret when I say that the eastern bloc has refrained from selling munitions, spareparts or complete parts for all the armament equipment. This, naturally, has thrown a big responsibility on the shoulders of the war industry. The evidence to this is the fact that it has been possible to acquire this equipment through either local manufacturing and production or through cooperation with sides other than the eastern bloc.

This is in addition to the fact that the war plants shoulder another burden, namely the responsibility of developing the weaponry of the armed forces and diversifying the weapon sources. There is also the emergence of the American side as a main center for the modern weaponry of the armed forces.

In this regard, I can say that war production in cooperation with the American side has proceeded in the direction of manufacturing defensive equipment. Preparations are underway in cooperation with the United States in many spheres of production, including munitions and heavy weapons and equipment.

Plants Take Part in Development

[Question] If these are the war production responsibilities entrusted to the war plants, then what is the general policy for which the plants are planning in order to serve the phase of peace and of the Egyptian citizen's welfare?

[Answer] The truth is that the factories' plan for the phase of peace is big and great. It is compatible with the country's national development policy followed in accordance with President Muhammad Anwar al-Sadat's instructions. I will give you some examples.

The war plants take an effective part in carrying out the green revolution by developing and increasing their production of the various kinds of irrigation equipment, including drip, sprinkling and submersion irrigation. This production also includes water raising equipment, such as diesel-operated pumps, electrical engines and (windmills) produced according to advanced technological methods.

There is cooperation between me and brother Ahmad Nuh, the minister of supply and domestic trade, to study the means through which the war plants can assist in producing automatic bakeries and in developing the existing bakeries.

The war production plants cooperated with the (Petrogas) Company which is in charge of the natural gas (city gas) project so that these plants may embark on manufacturing the equipment and connections needed to supply natural gas to homes in the greater Cairo.

The plants are producing and improving the economics of solar water heaters. We have also decided to produce 800,000 butane gas cylinders annually to realize the full production capacity in this important commodity.

We have decided to participate in the housing sector in a concentrated manner by expanding the production of electrical equipment and of modern water and electricity meters.

I think that this is enough.

Strong Relations Bind Me to Industry

[Question] (In a final question, I said to Minister Jamal-al-Din al-Sayyid Ibrahim:) What is the relationship binding the war industry to the production units of the Ministry of Industry?

[Answer] (He said very calmly:) I cannot say that a single relationship ties us to the Ministry of Industry. There are firm relations between the war industry and the Ministry of Industry and there is complete coordination between me and my colleague Engineer Taha Zaki, the minister of industry and mineral resources. Perhaps the most prominent features of this relationship are:

First, integration between the two sectors, in the sense that each possesses industrial components and capabilities that complement what the other sector

possesses and that each relies on the other as a source for raw and semi-processed materials.

For example, the war production sector is the only producer of diesel engines and workshop machinery in the country and the industry sector relies on it in this regard.

On the other hand, the industry sector produces concentrated acids and basic chemicals and is the only source that meets the war industry needs in this regard.

There is another bond with the Ministry of Industry in its capacity as the sole circle in charge of quality control. This is something to which the war industry adheres through the Egyptian standard specifications set by the Standard Unification and Control Authority.

There is coordination between the two sectors in the sphere of industrial investments and of developing their capabilities. However, this coordination is tied to the state's general plan which is governed by the actual needs of the local and foreign market.

Photo #1:



Jamal-al-Din al-Sayyid Ibrahim

Training in War Plants

Cairo AKHIR SA'AH in Arabic 8 Oct 80 p 62

[Text] Many youths have graduated from them and have become an important mainstay on which our major industrial renaissance relies. They are the men who join the plants and who make up for the shortage we experience as a result of expansion in industrialization and production.

The importance of the training sector in the war plants becomes evident through the view of the officials of the Ministry of War Production. In the view of these officials, the training sector works constantly to make up for the experience that departs as a result of emigration or of promotion and transfer from one place to another.

Missions Abroad

The training sector activity is summed up in drawing up the policy necessary to raise the various levels of worker productivity in the plants and to give the workers new expertise and skills according to the production requirements. This is done by giving the workers grants for academic and vocational studies inside and outside the republic so that they may specialize in all the fields of production. As a result of this training, the precision and quality of production in the plants have been improved. Many a plant worker has acquired their Ph.D, M.A or diploma in higher studies. The ministry has also increased the training grants given to workers and technicians so that they may study the sound principles of the existing industries.

One of the bright facts that deserve to be underscored is the fact that the students who have gone to Europe for training have been able to wrest the admiration of foreign experts as a result of their excellence in work in terms of both quantity and quality.

One of the prominent facts is that the ministry's training sector is training new skilled workers who are needed by our plants and that there are organized programs to graduate:

Skilled and semi-skilled workers in the chemical, electronic and metal industries.

Technicians and supervisors of production operations.

Technicians specialized in technology and blueprinting.

Types of Centers

Along with this level of training, there are, as we have already mentioned, in the war plants centers specialized in the metal industries, others specialized in the chemical industries and a third type specialized in the electronic industries.

As for the center specialized in the metal industries, it trains the workers on such skills as lathing, (culling), grinding and filing, on repair works, such as mechanical and electrical maintenance work and on metal works, such as casting and building prototypes. The center accepts high school graduates for training as skilled workers. The study period at the center is 2 years. The center also accepts graduates of junior high school to be trained as semi-skilled workers. The period of study at this center is 6 months only.

There is also another center for training on the chemical industries. The center accepts high school graduates to be trained as skilled workers and graduates of junior high schools to be trained as semi-skilled workers. The graduates of this center are appointed in the war plants as laboratory assistants, chemical workers, as well as other positions in this industry. A third and new center has been set up in the training sector to provide training in the electronic industries. This center is located in Benha and it trains skilled workers to meet the needs of the companies engaged in the electronic industries. This center accepts high school graduates for a 2-year period of study. The students graduating from this center enjoy the same privileges as the graduates of the other centers.

High Technical Institute for War Plants

The efforts of the ministry have not stopped at raising worker productivity in the plants and at training new workers to meet the needs of the plants. These efforts have gone further to study and research an important problem, namely the problem of our plants' need for technicians to carry out the task of supervision and implementation in the production shops and in the technical blueprinting and control sections. The plants used to entrust these tasks to engineers graduating from the engineering schools even though such works are not compatible with the specializations of these engineers. This led to burdening them with doubled responsibilities and to scattering their efforts.

The studies have resulted in setting up a higher technical institute for the war plants to graduate blueprinting engineers specialized in designing production and manufacturing equipment because this type of engineers is not graduated by the engineering schools. Through this type of training, the sector has been able to realize a leap in its intrinsic ability to provide locally the equipment and machinery needed for production--equipment and machinery that had always been imported from abroad.

The ministry officials assert that there is constant contact with the universities and scientific institutions to coordinate with them in providing broader opportunities in the sphere of practical training and in developing scientific teams with the aim of enhancing contact between the scientific and practical expertise.

A final word we want to say is that as they are pioneers in the sphere of war and civil production, the military plants are also pioneers in the sphere of training. These plants have thus deservedly earned the name of the "human hatcheries" or of the plants that supply our industrial society with the skilled human abilities that make the miracles of the glorious October.

Badawi's Visits to Plants

Cairo AKHIR SA'AH in Arabic 8 Oct 80 pp 34-35

[Text] Lt Gen Ahmad Badawi, the minister of defense and war production, has made a series of important visits to the war production sector plants. Badawi has been accompanied on these visits by Engineer Jamal-al-Din al-Sayyid Ibrahim, the minister of state for war production; Maj Gen Kamal Abu-al-'Azayim, the Ministry of Defense secretary general; and Engineer Muhammad Ahmad 'Abd-al-Fattah, the first undersecretary of the Ministry of War Production.

Throughout the past month, Lieutenant General Badawi visited four military plants in the areas of Hulwas and Abu Za'bal. After touring the various technical sections of the plants, Badawi held important meetings with the chairmen of the boards of directors of the plants to follow up their war and civil production.

The visits made by Lt Gen Ahmad Badawi underline his strong eagerness to follow up on the efforts and production activities of the war plants which are considered a main source for meeting the armed forces' needs of weapons and munitions, in addition to the plants' civil production which contributes to the national development plan and helps reduce the burdens of the Egyptian family and of the working woman.

Advanced Weapon Production for Egyptian Forces

In Hulwan area, Lt Gen Ahmad Badawi and Dr Jamal Ibrahim toured the metal and engineering plants. During the visit, Engineer Salah al-Sammudi, the chairman of the Hulwan Alloys Company (Plant No 9), and Engineer Muhammad al-Amin al-Mahjub, the chairman of the Hulwan Engineering Industries Company (Plant No 99), explained the production processes and the industrialization plan. On the occasion, Lieutenant General Badawi announced that coordination has been established with the United States and Britain to produce some advanced weapons and equipment in our war plants.

In the visit to the two war plants in Abu Za'bal, Engineer Jalal Hamzah, the chairman of Plant No 100, and Engineer Yunis Darwish, the chairman of the Abu Za'bal Special Chemicals Company (Plant No 18), provided explanations on the various technical sections. Badawi also inspected the operational processes, production lines and a number of service facilities in the plants and then expressed his appreciation for the spirit of the workers of the plants and for their full awareness of the importance and sensitivity of the war production sector as an element complementing the armed forces. The minister also urged the workers to exert still more efforts to bolster the military industries.

After the tour, Lieutenant General Badawi announced that Egypt will produce heavy guns and tracked troop carriers within the framework of the plan to develop military production in Egypt.

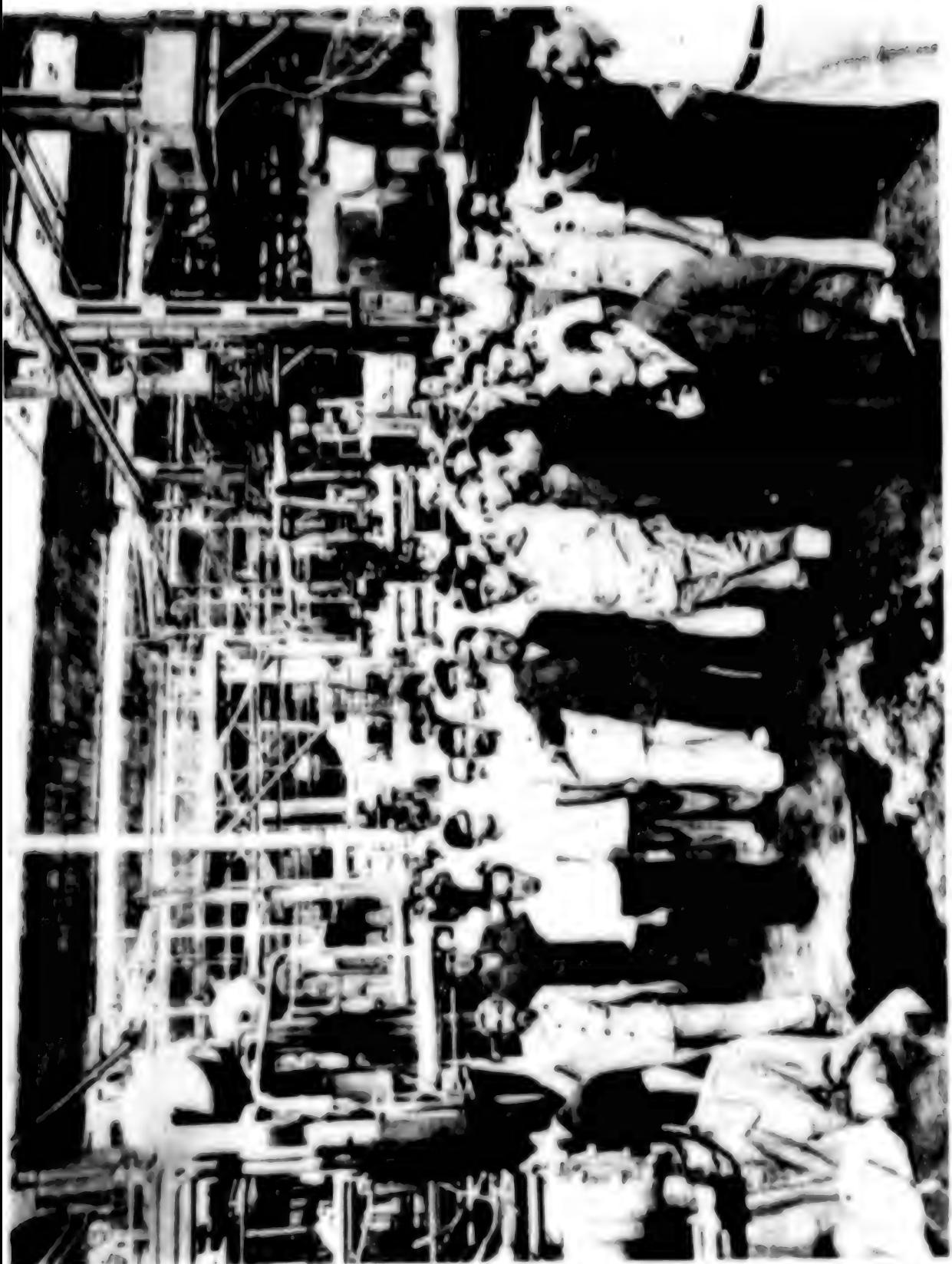


Photo #2

Photo caption, page 34: At beginning of tour, Lt Gen Ahmad Badawi, the minister of defense and war production, visited the Hulwan alloys foundry, the biggest foundry in the Middle East. He is seen here listening to the explanations of Engineer Salah al-Samnudi, the company chairman, in one of the production sites. Seen in the photograph with the minister of defense are Minister Jamal al-Sayyid Ibrahim and Engineer Muhammad Ahmad 'Abd-al-Pattah, the ministry's first under-secretary.

Photo #3



Photo caption, page 35: Lieutenant General Badawi during his visit to one of the war plants for metal industries. Also seen in the photograph Engineer Muhammad al-Amin al-Mahjub, the company chairman; Major General Abu-al-'Azayim, the Ministry of Defense secretary general; and Engineer Muhammad Ahmad 'Abd-al-Fattah, the first undersecretary of the Ministry of War Production.

Heavy Military Industries

Cairo AKHIR SA'AH in Arabic 8 Oct 80 p 39

[Article by Faruq al-Shadhili]

[Text] To be specific, Egypt will enter the age of the heavy military industries in 1981 to become the 21st country in the world and the only country in the Middle East and Africa to enter this sphere.

When work is completed in War Plant No 100 by the end of 1980, the production of heavy field artillery of various calibers and up to 203-mm caliber, of antiaircraft guns, of towed and self-propelling guns, of tracked personnel carriers and of armored vehicles will begin next year.

In the same year, the technological complex will start its production of rocket launchers and their engines.

The tour by Lt Gen Ahmad Badawi, the minister of defense, in a number of new war production plants has provided answers to more than one question.

The tour has told those who imagined that the war industry in Egypt will not stand on its feet after they stopped their financial support for the Industrialization Authority that the authority's plants have survived and have fulfilled all their agreements and their production plan.

The tour has told the Soviets who imagined that their expertise and technology are unmatchable that the Egyptian expertise and technology are in command of a lot. The modern plants are operating at their highest capacity and the development is ceaseless.

The tour has also said that Egypt's followup on whatever is new in the world of armament in both the east and the west is a commitment declared by President al-Sadat when he decided to diversify the sources of weaponry in the first place so that he may not be tied to the wheel of any country and so that self-sufficiency may be realized through our entry into the field of industrialization. Then followed the implementation of this decision. In the second U.S. loan, a sum of 470 million dollars was allocated for military industrialization.

In Plant No 100

In Plant No 100, the basic idea behind the plant came from foreign expertise which then stopped its aid. But the Egyptian determination has been behind the development undergone by the plant. The investments for the plant amount to 87 million pounds, of which 50 millions have been spent so far on the construction of hangars and on machinery and equipment.

Engineer Shawqi al-Babili, the project's technical director, has said in an interview with AKHIR SA'AH that the project has been set up in an area chosen to be suitable for the enormous size of the plant and without encroaching upon any cultivable land. We have carried out the president's instructions to invade the desert and to turn it into new factories and cities.

Water has been conveyed to the plant from al-Isma'iliah canal through a special network. The plant will complete its installations by the end of this year and will begin its production next year.

The preliminary operation hangar contains several subsidiary workshops. Another hangar, namely the operation and assembly hangar, contains several assisting workshops. From this plant will emerge heavy artillery (antiaircraft guns, towed guns and self-propelling guns), tracked personnel carriers, armored vehicles and tracked vehicles.

The power plant has also been built and all the equipment has been installed so that it may start its operation. The operational control equipment has been imported from the western countries. The operational equipment itself has been imported from the eastern countries. Thus, the Egyptian technology has been able to combine both east and west in order to realize the highest levels in production and in operation and so that the Egyptian war plants may produce the best guns and armored vehicles.

Experience of 30 Years

Plant No 18 has an experience of 30 years in the production of gunpowder and explosives, and even missile propelling materials. Here also the expertise of the east and of the west has been combined to improve the production. An indicator of the high quality of this production is the fact that West Germany has acquired some of its needs from this plant. There are other offers from western countries to benefit from the Egyptian technology.

At the beginning, it was the gunpowder and explosives plant. Because of this industry's need for cotton fuzz [zaghab al-qutn] which is not available in Egypt due to the fact that the Egyptian cotton is long-staple cotton which produces no fuzz on the cotton bolls, the Egyptian technology had to overcome this problem, considering that the amount of fuzz used in explosives is considered a secret which many countries are eager to keep concealed so that their reserve stock of projectiles may not be known. So a fuzz plant was set up to meet the needs of the Egyptian war industry and to export the surplus.

It also became possible to produce paints and celophane sheets from the plant leftovers. In addition to anesthetic ether, the plant also produces:

Binary gunpowder for heavy ammunition.

The gunpowder needed for small and medium-size munitions.

The dynamite needed for engineering projects.

The plant also supplied all the dynamite needed by the High Dam. Furthermore, it has prepared the quantities needed for al-Qattarah project, in addition to supplying all the dynamite needed for the oil and metal prospecting projects.

Synthetic fat production: A quantity of 1,800 tons is produced annually.

The production of 500 tons of industrial detergents instead of importing them from the Netherlands and England.

The production of (pull powder) of which we used to import one million dollars' worth from Belgium annually.

Plants No 18 and No 90

Plant No 18, along with its new colleague Plant No 90, form a complete community embodying all the appeals made by the president for the safety and security of the Egyptian citizen's present and future.

The plant's work plan seeks to supply munitions, gunpowder, explosives, missile-propelling materials and missile engines.

Such plants are usually built far from inhabited areas so as to avert their dangers. Abroad, such plants are built in forests. This complex is considered the most complete complex for the missile technology.

Turning Point in New Plant

The new plant (Plant No 18) is build on an area of 1,500 feddans and contains:

A plant for turbid water with a capacity of 45,000 cubic meters daily.

A plant for drinking and industrial water with a capacity of 25,000 cubic meters daily.

A 42-kilometer long road network.

A 27-kilometer long telephone network.

Fences around the sensitive industrial sites with a length of 10 kilometers.

A 40-kilometer long irrigation network.

A steam plant operating 24 hours daily.

A steam distribution network with a length of 3.5 kilometers.

A power plant with a capacity of 6 megawatts.

This means that the plant is a complete city with all its utilities.

This is why the plant is considered the only complex in the world in which all the modern technologies of missile-propelling materials and of missile engines are complete and at such a level of which Egypt is entitled to boast before the world.

Plant No 18 contains 3,500 families. The service facilities in it include a kindergarten, a cultural center comprising 84 women and an elementary school. A first grade of an intermediate school was opened this year. Food security is guaranteed by the farms in the plant. The plant orchards produce mangoes, grapes, dates and figs.

This is in addition to a chicken and duck farm. A livestock feed lot is under construction.

There is also an athletic club containing a swimming pool and a children's pool, a hall for sports and fields for group sports.

Here Is U.S. Technology

The new Plant No 100 has an area of 110 feddans of which 117,000 square meters are for buildings and installations. The plant contains the most advanced equipment imported from the various countries of the world for the production of guns and tracked vehicles. An agreement has been reached with the U.S. side to transfer the U.S. technology in the sphere of heavy military industries to this plant.

With their modern military production, the Egyptian war plants reaffirm that Egypt, the pioneer in all spheres, has abandoned vituperation and the struggle of microphones to produce and to enhance the capability of its armed forces. This is the Egypt that made the October victory which restored to the Arabs their dignity.



Photo #4

Gen Badawi and Dr Jamal Ibrahim listen to an explanation by Engr Hanzah, head of Factory #100.

Accomplishments of War Plant

Cairo AKHIR SA'AH in Arabic 24 Oct 80 pp 86-87

[Article by Handi Lutfi: "General Commander of Egyptian Armed Forces and Minister of State for War Production Inspect Accomplishments of War Plant No 9"]

[Text] Lt Gen Ahmad Badawi, the general commander of the Egyptian armed forces and the minister of defense and war production, went to them, to the men working in the Hulwan Alloys Company--one of the lofty edifices of the Ministry of War Production or the plant carrying No 9 among our major war plants.

The general commander heard their production rates, discussed the future plans, toured to see and inspect and discussed the obstacles and difficulties, the elements of accomplishment and the positive means to develop them. He did so during a daylong tour which he spent inside this Egyptian industrial and engineering beacon.

They [Badawi and al-Sayyid Ibrahim, minister of state for war production] were received by Engineer Salah-al-Din al-Sammudi, the chairman of the Hulwan Alloys Company Board of Directors and one of the men who have given the best part of their life to this national industrial base since its establishment prior to the July 1952 revolution.

Far from the lights, they have spent 27 years of hard and ceaseless day-and-night effort so that Egypt may possess a big, developable and expandable industrial base. They have been doing this since they met and formulated their ambitious national dreams and aspirations in 1953.

They have faced the harshest difficulties and the hardest obstacles. But with their unique and genuine Egyptian character, they had stood fast, they had never stopped and they had continued to struggle and to add year after year accomplishments that deserve to be studied and analyzed until the big test came in the October 1973 war. The Egyptian military industries base was then in a qualitative and quantitative race with time and these men were able in 1973 to triple the production of 1967.

The man I am interviewing today was one of those youths who lived with the beginning and who contributed to laying down this beginning in 1951 when he was an engineering officer with the rank of captain. He is still performing his role, out of faith and of strong bondage to his plant and to its production, for Egypt of the October victory, the Egypt of peace and of the hopeful tomorrow.

Engineer Salah-al-Din al-Samnudi answered my question on the beginning of Plant No 9 and how it started by saying:

The plant was one of a number of plants that had been planned to be set up and for which it was decided to acquire the equipment after the 1948 Palestine war. The beginning was no more than a foundry for the production of hand grenades. The basic part of the plant was embodied in a unit for rolling armor plates and for producing the steel necessary for ammunition.

Delivery of the equipment started in 1953-54 and this equipment was stored in 1954 without any positive steps as a result of the lack of a clear and firm political decision from the outset to set up a nucleus for this industry. It was then decided to set up the iron and steel plant and the state decided to have some parts of Plant No 9--consisting basically of the electric furnaces and the rolling unit--enter as a partner in the iron and steel plant. But we did not abandon our positions and after several stages of effort and work, the present company was formed. In 1958 we were preparing for production. We then stormed the civil sectors with our production.

We set up a foundry for fine alloys (al-sibakah al-daqiqah). The fine alloys industry is limited in the world and is considered one of the (highly advanced) industries. This industry saves us nearly 70 complicated technical operation processes. The plant's engine production has also attained the international standard. The plant's automatic foundry is considered one of the advanced Egyptian industries that keep up pace with the major plants in the advanced countries. Meanwhile, we are working at present to set up a new foundry for the production of tank tracks for our armed forces, to produce the steel masses needed to manufacture guns and to revive this strategic military industry in Egypt. The steel masses required for tanks or guns may each weigh up to 15 tons and require a bigger furnace than the existing one. This makes up project for the future the construction of a new rolling unit that contributes to producing the ammunition of the Egyptian armed forces.

Our projects for the civil sectors are proceeding according to a broad and comprehensive plan including the oil and industry sectors with their various branches, as well as transportation and the water utilities. This is in addition to our readiness to meet the war production requirements which are urgent requirements in peace time. This will give us the opportunity to produce and develop new types instead of relying on importation from the west. We have, God be thanked, highly qualified manpower capable of constantly developing and bolstering the war industries through an advanced technological approach.

[Question] What is the form of your plants' contribution to the civil sector?

[Answer] Nearly 70 percent of our production serves the industrial sectors, such as the textile plants and the spare parts they need, the sugar plants, construction machinery, equipment for oilwells, sewing machines, meat grinders, (gaskets and piston rods), electric lifts, (Simaf) railroad cars, all the iron and steel plants and parts of the (Decoville) cars. We have set up a special plant for the production of engines to produce 9,000 engines for agricultural tractors, 15,000 car engines and 7,500 al-Nasr bus and truck engines. This foundry started its work in 1975, cost 8 million pounds and is considered one of the Egyptian national resources.

It is important to note that in coordination with the Ministry of Industry, Plant No 9 has been specialized since 1969 in producing engineering cast iron alloys.

Plant No 9 supplied the manganized [al-maghanizi] steel needed for the drills used in the High Dam--this major national project.

We have the steel foundry which produces carbonized steel alloys and steel ingots, using electric furnaces. The foundry's capacity amounts to 2,000 tons of alloys used in the production of swivel chairs and wheelchairs, of parts of railroad cars, alloys for oilwell drills and heavy equipment, spareparts for various industries and manganized steel alloys.

We then find the manually operated foundry which supplies the iron and steel plants' needs, such as casting molds and rolling vessels and bases. The weight of casting molds reaches up to 5 tons per mold while that of vessels reaches up to 17 tons per vessel and of bases up to 16 tons per base. The annual production capacity of this manually operated foundry amounts to 17,000 tons.

We then get to the fine alloy casting foundry. As I have already said, this plant saves us very many multi-sided and complicated operation processes. The weight of the alloys produced amount from several grams to one half kilogram per piece. The most important products of this plant are spareparts for the textile companies, surgical equipment and sewing machine parts.

We then find the (gaskets and piston rods), foundry which seeks to supply all the country's needs of these two products which are necessary for all kinds of engines with a diameter of up to 200 millimeters. The foundry's annual capacity has reached 2 million (gaskets) and 200,000 (piston rods).

There is also the Port Said foundry for the production of grey cast iron and a number of non-iron alloys that serve the workshops and factories adjacent to the foundry in Gharnah area and in Port Said and al-Amiriyah street, in addition to the Shubra diesel factory.

As for the engine foundry, it is the most advanced international foundry in the Middle East. It employs the arts [sic] and sciences of a modern technology to serve the car and diesel engine factories and workshop machinery. The foundry contains 4 electric furnaces, each with a capacity of 6 tons. The foundry's production capacity has reached 25,000 tons of molten metal.

Engineer al-Samnudi has also said:

In 1975, the Egyptian labor produced 6,813,000,000 pounds [figure as published] in Plant No 9. Last year, the figure rose to 8.47 billion pounds [figure as published] as a result of the efficiency, precision and technical standard at which we operate. On the instructions of Lt Gen Ahmad Badawi, the general commander, we are exerting maximum efforts to bring the standard of our skilled labor up to the levels of the U.S. and international labor without letting a single Egyptian worker fall short of this level.

In implementation of the plans of the minister of defense and of war production, we are preparing to invade the international markets with our national production. Lt Gen Ahmad Badawi, the general commander, has explained to us the possibilities of cooperation with the Armed Forces Research Authority to serve the constant development of the war plants production and to surpass the international production standards.

The tempo of the men in this major Egyptian beacon of war engineering industry is picking up speed. Every year the men face enormous tests and technical and international challenges and they overcome them firmly and with faith and confidence in their abilities. They constantly bolster their industries from within. This has made the men of Plant No 9--men whose expertise has fused with the fires of their furnaces in maturity, in thought and in bright scientific innovations--the pioneers of an advanced Egyptian technology in the sphere of military industrial production.

Visit to Plant 99

Cairo AL-MUSAWWAR in Arabic 10 Oct 80 pp 44-46

[Article by Hamdi Lutfi]

[Text] While we have been preparing to receive the most glorious days of our national victories--the glorious October anniversaries--beginning with the seventh anniversary of the immortal 6 October victory, the anniversary of honoring the high accomplishments and creative innovations of the Egyptian engineer in industrializing the country 3 days later and then the big national anniversary--the 10th anniversary of President Anwar al-Sadat's assumption of the presidency and of his leadership of the march of the legitimate democracy and of the supremacy of

the law--on 16 October 1970, while we have been preparing for all this, Lt Gen Ahmad Badawi, the minister of defense and war production and the general commander of the armed forces, accompanied by Engineer Dr Jamal al-Sayyid, the veteran signals professor and the minister of [state for] war production, and Maj Gen Engineer Muhammad 'Abd-al-Fattah, the professor of military industries and the first undersecretary of the Ministry of War Production, has paid several inspection visits to the Egyptian military industries base which had contributed greatly to the plan of preparation for the Ramadan [October] war and has also contributed greatly to the civil production in the various industries. The leaders have seen the production lines inside these secret bastions that are lofty with their production and have listened to and discussed the ambitious future plans with the leaders and engineers of these lines.

These visits included a visit to War Plant No 99--the mother plant of all the military and civilian factories and one beacons of the advanced military and engineering industries in our country, a beacon whose rise accompanied the rise of the July 1952 revolution.

What did the minister of defense and war production see?

Come let us see the plant on the spot and listen to its leader who is also an Egyptian military commander who has given the world and our armed forces the noblest and most honorable accomplishments in both secret and public missions, namely Maj Gen Engineer Muhammad Amin al-Mahjub.

The accomplishment they gave our armed forces while these forces were preparing to launch the glorious October war--and throughout and after the war--was not the result of a blind lucky strike or the result of an extra effort tied to a set period. The accomplishment was the result of a background rich with experiences and expertise and of an industrial background based on a concerted, hard and ceaseless effort since 1954 and continuing until today and into the future. The establishment of the Egyptian military industries accompanied the start of the revolution. These industries managed to get together a number of the Egyptian military youths and military engineers who worked most energetically and who came up with distinctive engineering ideas, innovations and additions until they were able to lay down a mature base for the Egyptian military industries from the outset. Those men also defended these industries with all their might when the industries were exposed to constant storms, obstacles and difficulties, and even invisible plots from inside and from abroad aimed at putting an end to these industries' life. But the men of these industries were fully vigilant, steadfast and faithful and were able to keep the ghost of stagnation away from this national Egyptian industrial edifice. Those men defended the edifice most nobly and honorably, with silence and secrecy and away from the light and from the information media until the catastrophe hit in June 1967. The advanced manpower never stopped working and sacrificing. In the early 1970's, the military plants played a positive role in bolstering our armed forces militarily by mustering all their resources for the October 1973 war. The plants also performed an outstanding role in supplying the Egyptian masses with their needs of industrial equipment for various purposes. This is in addition to what the plants offered the various service projects and the major Egyptian factories by supplying them with their complementary equipment and machinery to enable them to put out modern production of quality and standards comparable to those of the advanced European production.

War Plant No 99, which later came to be known as the Engineering Industries Company, has been one of these national military bastions that have contributed to raising production to unprecedented levels. This plant also had its role in supplying our armed forces with high-quality Egyptian ammunitions for their heavy weapons which the forces used in liberating the Sinai.

It is a story that deserves a pause. Its protagonists are these pioneers--the leaders of the Egyptian manpower in this gigantic plant--who have spent the best years of their life so that we may be able to possess an Egyptian technology and expertise in the military industries science. They have formed a big generation of engineers, technicians and administrators characterized by ability and by the capacity to create national success on the firmest ground.

In an interview with Maj Gen Engineer Muhammad al-Amin Mahjub, the veteran infantry fighter who graduated from the War College in 1949, acquired his B.A. in law, then his M.A. in engineering in 1956, then an M.A. in ammunition and missile engineering in 1958, who is one of the commanders who spent all their youth in an effort to enable Egypt to acquire advanced and sound weapons, whether manufactured at home or imported from abroad, who is one of the pioneers of national military industrialization, who for a long time made his expertise available to the aircraft and missile industry, who, at the same time, was in charge of the technical supervision of the ammunition of our armed forces in the sensitive period during which we rebuilt our armed forces, beginning with 1968 through the phase of preparation for the October 1973 war and ending in 1975, and who now holds the position of chairman of the Board of Directors of an enormous war plant in our military industry, namely Plant No 99 or the Engineering Projects Company--in an interview with this man, he has said:

The plant was founded in 1954 and started operating in 1958. In the period between the two years, the war plants encountered some difficulties which compelled us to put most of the equipment of these plants in storage until the time when the Suez Canal was nationalized and when an economic embargo was imposed on Egypt to punish it for the nationalization. By necessity, the revolution then proceeded in the direction of industrialization, relying initially on the war plants. The wheel of progress then dictated its march.

The Engineering Projects Company was set up to possess industrial construction capabilities, along with an ever-developing Egyptian technology.

Today and after the expansion carried out in previous years and after the annex plants attached to the mother plant, we produce heavy ammunition--the shield protecting our armed forces. It is not easy to dwell on the details of this industry due to security and secrecy requirements. We produce heavy artillery munitions of various calibers, both large and small mortar shells, bombs for the destruction of aircraft runways, guided anti-concentration, antitank and anti-aircraft missiles, highly explosive ammunition and various types of mines, such as land mines, marine mines and the accoutrements of the mine industry, such as mine detectors and mine detonators.

The old factory now includes several plants for the production of diesel engines and engine parts to serve the stationary and mobile units of our armed forces, be they vehicles, power generators, air compressors or water pumps.

The plant has also been prepared to produce the machinery and equipment used in industrial workshops, such as lathes, drills, (metal millers), grinding machines, saws and (metal cutters). The expansion and development projects have also included a plant for engine spareparts that meets our armed forces needs of (piston rods, gaskets and joints) [al-basatim, al-shanabir wa al-shummayzat]. The plant has also met the needs of the civilian market. The plant also includes sections for the production of machines for gear opening, vertical, horizontal and general (sorters) and machinery used for manufacturing engineering products. We also have special laboratories to test the qualities of metals and modern computerized equipment to establish the accurate scientific standards in selecting raw materials and to determine their chemical and mechanical characteristics at both the military and civilian levels. This computerized equipment uses the system of punch cards, magnetized tapes and microfilms to recall information on the plant's general planning and to apply this planning at the practical level. These are delicate tasks which enable us to keep up pace with the most advanced similar European plants. All these projects serve the future plans, considering that we will be producing stainless steel products with the support of our highly developed expertise which is rich with its knowledge, sciences and innovations and which has created a pioneer Egyptian technology. This expertise has also participated in the construction of major state projects, such as the iron and steel plants, the telephone production plants, the railroad car production plants and others.

Thus, our plant plays strategically the role of the "big mother" insofar as the war and civilian plants throughout the republic are concerned.

Regarding the civilian production and meeting the masses' needs are concerned, you will find that we produce nearly 600,000 butane gas cylinders of four various sizes and propane gas cylinders of various sizes for home and industrial use. These products fall under the category of precise engineering industries. The plant also contains modern laboratories for scientific research connected with the operational and structural problems of metallic and non-metallic raw materials, with the scientific thermal approaches pertaining to the cylinder industry, to safeguarding people against their dangers and to following up the production of these cylinders technically until the last phases and until they are released to the markets.

We also produce other items, such as fire extinguishers, small propane gas cylinders that are used for lighting purposes, in addition to their use as fuel, benzene [fuel] pumps, windmills for raising underground water in remote areas, heaters, kitchen requirements, such as sinks, pots, pressure cooking pots, hot plates, gas ovens and scales of various sizes.

The plant also produces drills which are used by various factories and workshops in both the public and private sectors.

Thus, Plant No 99--or the major Egyptian military industry stronghold--develops its production year after year, implementing an enormous development plan to produce the most modern kinds of commodities needed at both the civilian and military levels. This development has helped to reduce importation from abroad through reliance on the industrial base represented by our war plants and by the technological and scientific progress they have realized in their war and consumer products to serve our masses. They have realized this progress despite their young existence in this sphere--an existence of less than one quarter century. This enormous accomplishment has been realized by virtue of the richest asset possessed by our country's war production base, namely the highly skilled human ammunition consisting of skilled engineers, technicians, managers and workers who have risen to the level of the European manpower.

Photo #5



The Minister of Defense listens to the explanation of one of the engineers of War Factory #99. To his right is Haj Gen Mohamed al-Amin Mahjub, board chairman of Factory #99 (dressed in civilian garb). To the far right is Maj Gen Jamal al-Sayyid, minister of War Production, listens to the information on heavy weapons ammunition.

Photo #6



Gen Badawi listening to an explanation of Engr Muhammad Abd-al-Fattah, First Under-Secretary in the Ministry of War Production.

Accomplishments of Plant 18

Cairo AL-MUSAWWAR in Arabic 24 Oct 80 pp 70-77

[Text] The "picture of success" will necessarily change in the minds and visions of some of us when they spend a day inside this big city which is engulfed in the desert by trees and secrecy and when they see the small towns that this city contains. The day will pass before you reach the peripheries of this city and the truth of the success of which some of us are not aware will become clear.

We will learn, see and feel that success does not only mean making big financial gains, not reputation and not just defeating an opponent but that it is much bigger than we have painted it in our minds.

The success here is embodied loftily in the most brilliant collective victory against the backwardness of man, rather in defeating backwardness in real life. This family, the family of Plant No 18, has created in the desert a new Egyptian birth seething with the most advanced life--they have established an advanced Egyptian industrial civilization to which Eastern Europe and then Western Europe attested in the 1970's.

You will see success embodied here over a vast area of the Abu Za'bal desert in the participation of thousands of giants who have turned into one hand, one arm, one mind and into feelings as if emanating from one heart and who have been able to establish the biggest Egyptian industrial engineering edifice that serves both our armed forces and our people's masses.

They are the family of Plant No 18--that Egyptian plant or industrial bastion that bears No 18 among the war production plants. The story of this plant is closer to a genuine Egyptian epic that has been and is still being created silently and far from the lights by this big family. They have turned success into an Egyptian symphony as immortal as language and the turn of time--a symphony that impresses the eye, the heart and the mind with the richest feelings of appreciation and gratitude for this kind of national sacrifice for Egypt's present and future.

It was natural for Lt Gen Ahmad Badawi to go to them and to spend a day in their city--the city of family 18--accompanied by Maj Gen Dr Jamal al-Sayyid, the veteran signals fighter and the minister of [state for] war production, and Engineer Muhammad 'Abd-al-Fattah, the ministry's first undersecretary.

After a thorough tour of the plant's sections--each of which is closer to an independent plant--Lt Gen Ahmad Badawi, the minister of defense and war production, said in reflection of his impressions and in reply to some press questions:

"It is unfair to describe it as a plant. You can rather say it is industrial complex No 18. How I wish every Egyptian man, and even every Egyptian woman, could come to see this great accomplishment that has been realized by this great family with its performance and so that Egyptian women may see the kind of community that the women of this city have built--a community of which Egypt is entitled to be proud and which it is entitled to advocate in order that the creation of such a community may recur over every part of the country's soil."

Sands Have Turned Green

Come let us tour in words and pictures the city of family 18 with the minister of defense and war production while he inspects the plants, clubs, schools, playground and farms of this city and let us hear Engineer al-Sayyid Yunis, a member of the pioneering generation of the Egyptian military industries or the military-civilian industries and member of the manpower that is brilliant with its industrial, engineering and scientific capability. Come let us hear Engineer al-Sayyid Yunis, the leader of this city who has given the best years of his life to his big family. He came to this part of the desert in 1950 and erected with a few other men, led by Engineer 'Abdallah Ghunaym, first one tent and then a few tents and started to work as of that date with all their human capacity and their high morale until the yellow desert turned green as far as the eye can see. Over this greenness, the man and his sides have created a modern Egyptian civilization surrounded by high trees.

They faced the hardest difficulties and obstacles but never wavered. To their firm solidarity and their leadership--a leadership vigilant and aware of the possibilities of the present and the requirements of the future--goes the credit in their overcoming the challenges, their surmounting their stumbles and their achieving within a quarter century the highest and most advanced production.

We will pause here for a moment to answer a question that poses itself: What does this city and its gigantic plants--or family No 18, as they are called among the war plants in our country--produce?

The start was in 1950 and it was comprised of a large number of military and civil engineers and some modern management people who undertook the responsibility of setting up this new industry--the armament industry--in Egypt. One of those men was Engineer al-Sayyid Yunis who was then a first lieutenant in the armed forces and who holds at present the position of chairman of the Board of Directors of the Abu Za'bal Special Chemicals Company. Yunis assumed this position upon his return from an academic scholarship abroad and started performing his role in creating Plant No 18.

Hard and ceaseless efforts persisted, engulfed in total secrecy despite the innovations, additions and the accomplishments which those men made. They overcame the challenges that faced them when the source of weaponry became the eastern bloc. With a steel will and with firm and constant steadfastness, they crossed the barriers that faced them in their national industrial march. Then came the phase of preparation for the October war from 1971 to 1973. Throughout the war and after the war, they faced a practical test of their ability to sacrifice and of the capability of their production lines. They embarked on a race, both qualitative and quantitative, with time and supplied our armed forces with the needed explosives, with aircraft bombs, with engines, missile fuel and with mines of various kinds and for various uses.

In an interview after Lt Gen Ahmad Badawi's tour of the Abu Za'bal Special Chemicals Company--or Plant No 18--and of its major city, the chairman of the company's Board of Directors told me:

We have had the opportunity to work in the noblest national sphere, namely the most important sector of war production, i.e. the sector of gunpowder, modern explosives, missile propelling materials and missile engines. We have been able to contribute practically to implementing President al-Sadat's strategy of diversifying the sources of weaponry and we have turned Egypt into a source with considerable technical value in supplying modern munitions and missiles to our armed forces.

When we started the explosives industry--Europe sets up such plants in forests which we do not have--we had to turn the desert into a forested area to set up the plant and we have had to continue to expand and make additions year after year. The sands have turned completely green and have been named the sixth oasis of Egypt.

With the construction of the plant, we found it necessary to set up an electric power reception, transmission and distribution plant. We have built a waterline to pump water from al-Ismailiyah canal to the site. The waterline is divided into two parts: A part forming a network that irrigates vast areas around us and another part that flows into the water plant that serves the industry and that supplies drinking water. We also had to build a long network of roads, another network for drainage, a third for sewerage and yet another for industrial drainage. At the same time, we had to build houses for the workers and their families. We then built the schools, the medical clinic, the hospital, the kindergarten, the

crafts shop for the wives, the poultry and duck farms and the orchards that produce the tastiest mangoes, citrus fruits, grapes and figs. We also set up the athletic club which has built more than one swimming pool and playing field, the cultural club and a modern gymnasium. We have also formed a theatrical and folklore song and dance troupe comprised of the sons and daughters of the workers, a musical group comprised of men, a Judo team, a soccer team, a basketball team and teams for other sports. We have also set up a consumer cooperative and a nursery for flowers and roses. All these facilities and services in our city are meant to meet the daily needs of the members of our big family--family 18. Thus, the desert and its sands have turned into a civilized modern industrial and agricultural society. Egypt, the greater mother, is proud of this small homeland.

The company chairman goes on to add:

In addition to producing gunpowder and explosives for our armed forces, there is a special production for the people's masses. We have produced a synthetic fat called by the name of al-Taybani in memory of the man who established the process of manufacturing this excellent fat. He is one of the members of family 18 which also produces anesthetic ether and many of the chemicals needed by the civilian industries, such as the paints industry which depends on us in acquiring the chemicals it needs for its various products, in addition to producing explosives for the mining and oil sectors and for the major humanitarian projects, such as the High Dam. We will, God Willing, participate in implementing al-Qattarah depression project.

We are now building, as part of the expansions in our major city, a complete complex for an Egyptian technology for the production of propelling materials for missiles and missile engines. You can call these expansions the new city because they are being built over an area of 1,500 feddans of the desert. We are building new and modern facilities for this city--a water plant supplied with water from al-Inma'iliyah canal with a daily capacity of 45,000 cubic meters and another fresh water plant for drinking and industrial purposes with a capacity of 25,000 cubic meters daily, a modern road network with a length of 42 kilometers, a telephone network with a length of 27 kilometers, fences and trees around the plants due to the sensitive nature of the production with a length of 10 kilometers, a modern mechanized irrigation network with a length of 40 kilometers, a steam plant that produces 24 tons per hour, a steam distribution network with a length of 7.5 kilometers and an electric power plant with a capacity of 6 megawatts.

This complex that we are building is the only one in the world which completely contains all the technology of propelling materials used in missiles and missile engines. Scientifically, Egypt is entitled to be proud of this complex before the peoples of the world. The efforts of several European and major powers--namely, Sweden, West Germany, Austria, France, the United States, Switzerland and England--are cooperating in this complex. On top of all these efforts and of the international cooperation programs, there are the efforts of the Egyptian technicians, scientists, workers and managers of family 18 who are exerting utmost efforts out of faith and of awareness. These men have produced for Egypt purely Egyptian technologies emanating from the minds, knowledge, innovations and additions of the Egyptian cadres contained in family 18. I am honored to speak about this family and about its brilliant abilities, accomplishments and progress because all those working in our

Plant No 18 have interacted like the members of a family that includes leaderships and a broad labor base. The family sense that I mean is not the relations that bind us to our site here. The sense that I mean is the profound family sense. We have here the father working in the plant and his son working next to him and the wife performing her role next to them while the grandson is in the plant's kindergarten or elementary school.

Regarding the wife, whose role has been lauded by the general commander of the armed forces, and her role in this family 18, the chairman of the Board of Directors said:

Some of the wives work in the gunpowder packaging plants and they have achieved a [high] level of vigilance, performance and effort. They are the ones exclusively involved in the production of anesthetic ether in their capacity as angels of mercy. You also find some of them working in the plants' managerial work. A large number of the sons and daughters of the workers, managers and technicians are involved in the activities of the cultural center of the Women's Council of the city of Plant 18 and that they take part in the center's daily activity of producing work clothes for the plant workers, thus earning an income that adds to the family income and improves its standard of living.

The nursery takes care of the children of family 18 until they are 2.5 years old. The kindergarten then takes care of them until they are 6 years old. The children then move to the elementary school. As of this year, the elementary school graduates will enroll in the first grade of the intermediate [junior high] school which we have been eager to open so that it may receive those who graduate from the elementary school successfully.

We Hope President Will Visit Us

Thus, our family 18--which is comprised of nearly 3,500 families--has responded with utter faith and confidence to President Anwar al-Sadat's appeal to safeguard the mature environment, with all its components and elements of enhancement, day after day and without a single (doubtful) step. We hope to be honored by a visit from President al-Sadat so that he may see on the spot the practical application of all the slogans that he has raised regarding security and reassurance for every Egyptian man and woman of all walks of life. In application of the slogan of food security, the men have invaded the desert and have turned it into an enormous forest of high trees within which they have built farms and mango, grapes and citrus orchards and poultry and duck farms. We are working at present to build a cattle feed lot. Our thanks to the Ministry of Supply which has participated with us in opening the first consumer cooperative ever established in the major industrial areas.

The sun was setting when I left this modern Egyptian military bastion which plays the sweetest tunes of life for the enhancement of the Egyptian man and columns of workers were leaving their homes--each of which contains a television set, a refrigerator, a hot plate, a gas oven, an electric heater and a fan--to go to the playgrounds: The tennis and volleyball courts, the soccer field, the basketball

courts, the adult swimming pool or the modern gymnasium. Meanwhile, the children were on their way to a special children's pool or to their small school for folklore arts. The Judo team of Plant No 18 was doing its training--some members of the national Judo team came from this plant. The wives were on their way to the family's big orchard. All this is something that the members of this family do as part of their end-of-the-day program out of their faith that a sound mind is in a sound body. Meanwhile, Engineer al-Sayyid Yunis, the leader of this noble family with its fine human fabric and one of the leaders in the field of industry, has realized perfectly well that the art of leading men and of extracting the best efforts and capabilities they possess lies in the system of financial incentives and rewards and of citation for distinguished efforts--in some phases, the incentive pay exceeded the wages. Thus, the rate and quality of production have risen and experts from both Eastern and Western Europe came to us some years ago to ask for the exchange of expertise and of technical cooperation programs with us. I left behind this Egyptian beacon with its leader saying:

"No credit goes to me personally or to other individuals here. With the arms of my giant sons, with their performance, their most noble sacrifices, their possession of the highest thought, knowledge and learning in their field of specialization, with their great solidarity which makes you view them as a single man, with collective efforts and with vigilant discipline, we established the base of success and achieved victory in the military and production battles which we have waged. We keep in mind the Hadith of God's prophet, may God's peace and prayers be upon him: 'Egypt's soldiers are the best soldiers in the world because they are bound by solidarity until the day of resurrection.'"



Photo #7: An Egyptian woman working in electronic manufacture, for testing and developing rocket motors at the modern electronic testing base at war Plant #16.

Photo #8



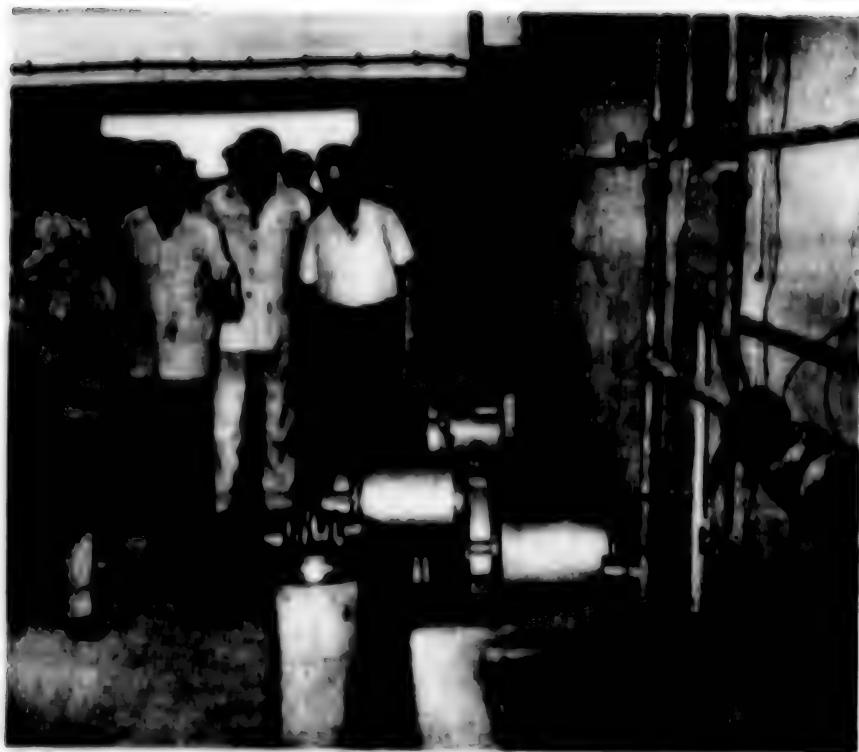
Gen Ahmad Badawi listens to Engr Yunis amid modern world-class laboratories used by the engineers and technicians in Factory #18.

Photo #9



Cotton down bleaching section which is used after that in the production of gun powder and rocket launchers.

Photo #10



Photos #10 and 11: Gen Badawi listens to an explanation on Egyptian technology in the production and innovations in rocket fuels at Factory #18. This was done in a chamber behind a protective screen isolating the machines which are operated for these fuels and controlled electronically.

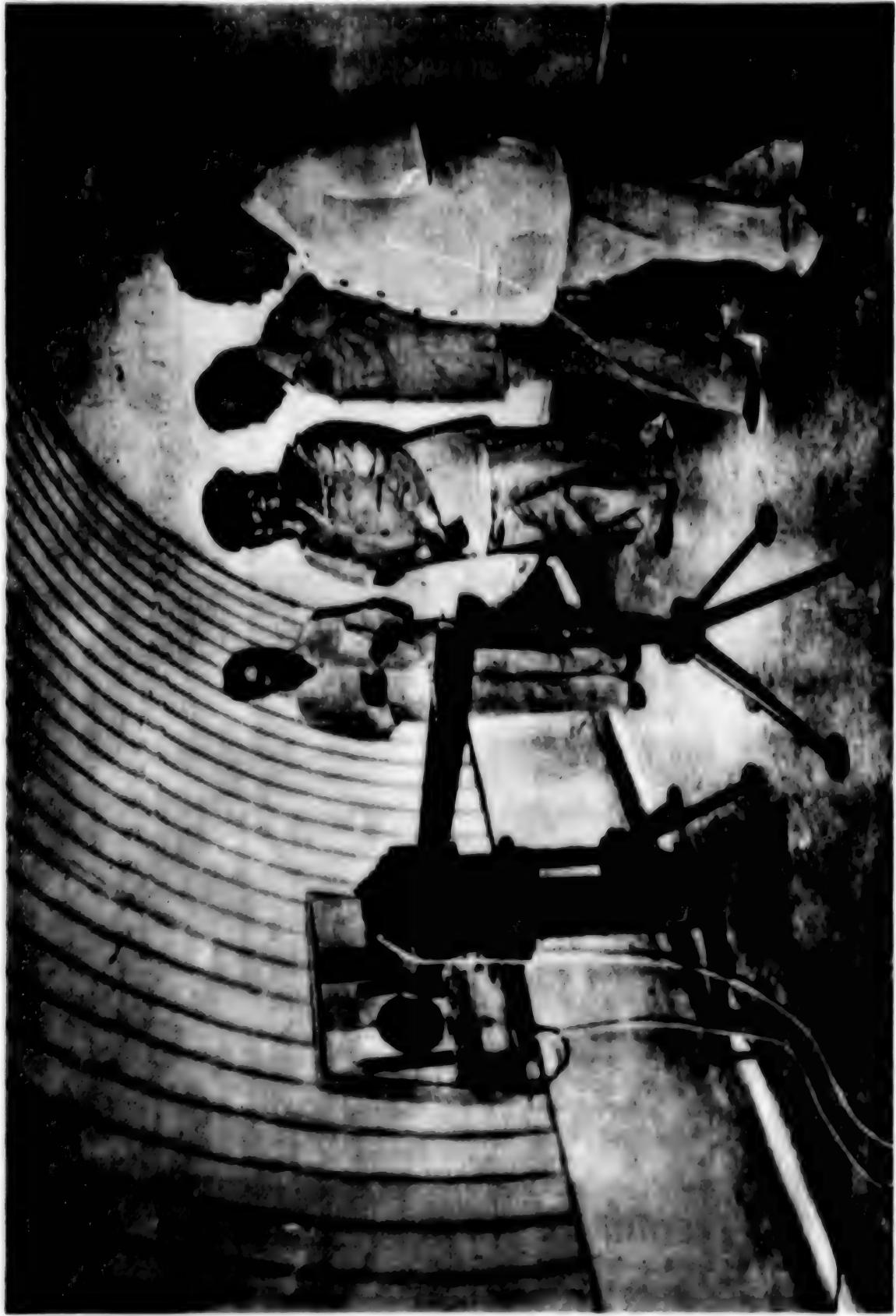
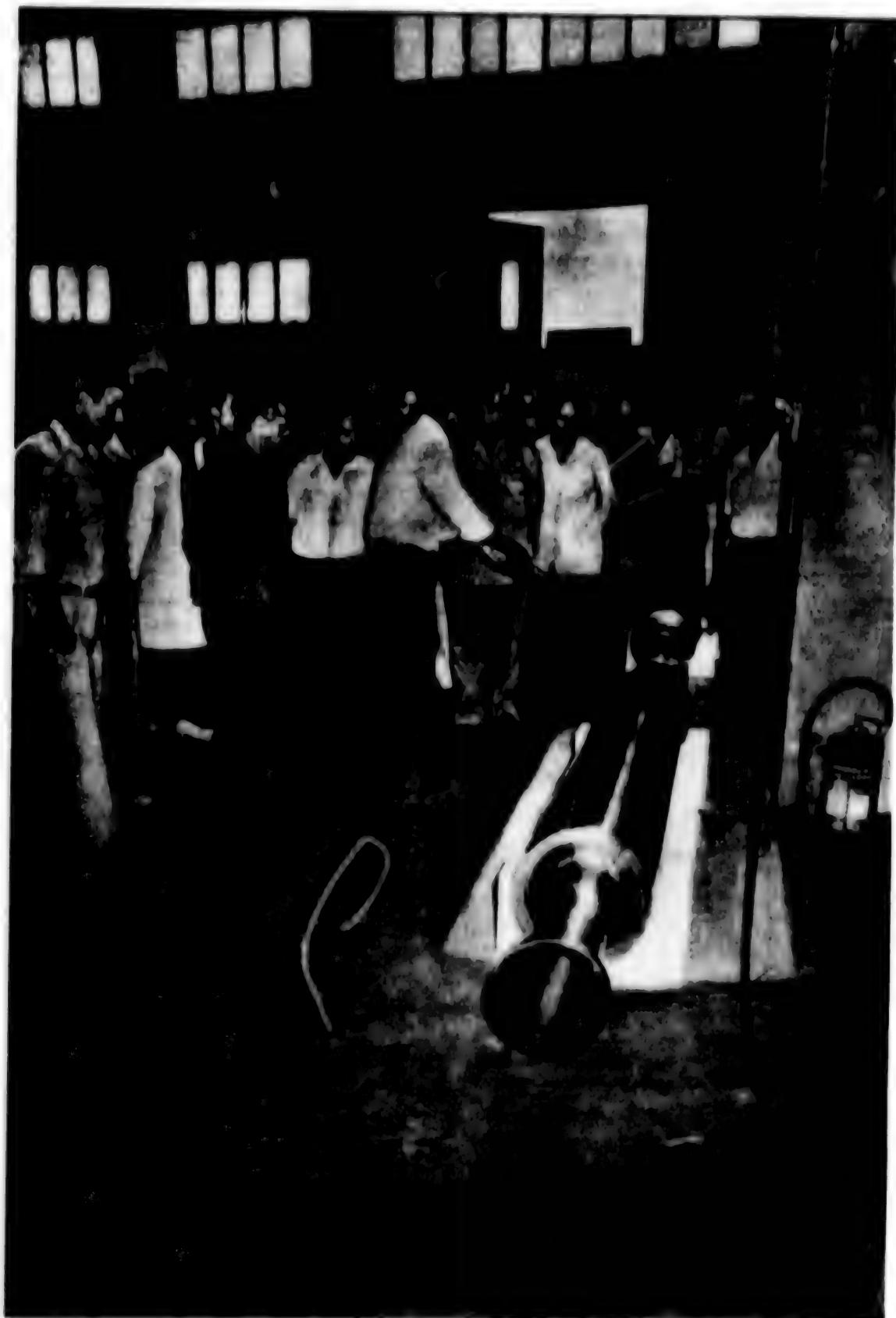


photo #11

Photo #12



A new rocket motor made in Factory #18 for the Air Defense Forces which is part of the factory's newly developed production program.

Photo #13



Egyptian women packing fuzes for dynamite and rocket fuels.

PHOTO 74
Numbering sticks of rocket fuel, a precise technical operation done by highly efficient Egyptian women in Factory #18.



Benha Electronics Plant

Cairo AKHIR SA'AH in Arabic 8 Oct 80 pp 52-55

[Text] What is happening at the Benha Electronics Plant?

How does life go on in the plant which got the managerial excellence award last year?

What is new in the company's diverse production in the coming phase?

In this press report, AKHIR SA'AH presents a real picture of the work and efforts being exerted in one of the important centers of the electronics industry in Egypt.

How far is today's picture from yesterday's and how magnificent is the new picture that I have seen in the Benha Electronics Industries Company! The picture has changed completely. The company's production lines have developed, production has doubled, sales have risen and the labor and wage conditions have improved tangibly.

To put it very briefly, an enormous development has taken place in everything inside the company's plant.

In return for this success and in crowning the brilliant leaps made in the company's production in recent years, the company has gotten the managerial excellence shield for the war production sector. On 25 March 1979, Vice President Husni Mubarak handed the excellence shield to Engineer Latif Muharram, the chairman of the Board of Directors of the Benha Electronics Industries Company. This was the truest honor award from the state to a company that has attained a high level reflected in the production figures and in their qualitative and quantitative increase year after year.

But a person may wonder: What is the story of this successful war plant? What about its civilian production in particular and what is the secret of its excellence in the past few years?

At the outset, in the early 1960's specifically, the war production sector thought of setting an electronics industry company and the site for this company was chosen in the middle of the farms of Benha. The aim of this company was not just to perform a role in serving the armed forces. The thinking behind the company went to the importance of benefiting from the plant's big production capacity to serve the Egyptian civilian sectors especially and the Arab world generally.

The nucleus of this plant started with a unit for assembling the parts of both transistor and valve operated radio receivers for home use. This start made it possible to form trained and skilled manpower in this industry that was new to our country. Tens of various models of radios were produced.

The years passed while the company continued to exert ceaseless efforts, thus managing in recent years, thanks to its successful leadership, to perform its message and to highlight its effective role in the sphere of producing most parts of the electronic equipment with 100 percent Egyptian labor. Examples of this production are coils, transformers, printed circuits, metal parts and other parts.

Abundant and Good Production

In addition to supplying the armed forces with modern electronic equipment, the company now plays a prominent role in the civilian production for various sectors, including the government, business and consumer sectors.

Insofar as serving the government and business sectors is concerned:

First, the company has specialized in the production of numerous types of electronic equipment for the various state sectors and for the market, including the radio communication equipment for civilian purposes, such as the HF, VHF, SSD and Transceivers.

In this sphere, the company has installed numerous networks for various organizations in the republic, such as the meteorological observation service, the river transport service and the High Dam lake, in addition to carrying out the necessary maintenance work.

Third, the company has installed numerous units of audio equipment and internal communication equipment in training centers, hospitals, public installations and in the various fields of security.

Fourth, the company has produced numerous types of engineering and scientific equipment that serves the oil companies. The company also produces metal and mine detectors, equipment for measuring radiological pollution and equipment used in the spheres of education and training.

Company's Surprise to Public at Beginning of This Year

Let us now move to the sphere of the company's production for the consumer sector, concentrated mainly in the production of television sets. Throughout long years, the company has produced high-quality and high performance sets. The company produces the Sharp brand 20-inch colored television set for which the market demand is increasing, the Sharp brand 20-inch black and white television set, the National brand alarm transistor and the Philips brand stereo equipment. The company's surprise to its customers is that it has decided to produce a 22-inch colored television set with remote control of the West German Telefunken brand, in addition to various types of K.D.K. brand fans and USHA brand ceiling fans.

Second, the company has produced numerous kinds of electrical products for the local market, including [two words indistinct], flourescent lamps, and electricity switches and fuses of all kinds.

Third, in the sphere of electronic parts, we have already noted that the company produces many parts needed by the electronics industry.

Fourth, in addition to all this, the Benha Electronic Industries Company produces a number of metal parts that serve the sister companies, in addition to meeting the market needs inasmuch as its capacity allows.

Secrets Behind Abundance and High-Quality of Production

The great size of this industry, its precision and the success of the company's production are the result of several important considerations and indications (sic) of which we will note:

The company's cooperation with international companies of good reputation and well-known names, such as the British Rascal and Plessey companies which operate in the sphere of telecommunication equipment for the civilian sector.

In the production of television sets, the Benha Company cooperated with Sharp, a Japanese company, and Telefunken, a West German company.

In the production of closed television circuits, the company cooperates with National, a Japanese firm.

In the production of (window), office and stand-mounted fans, the company cooperates with K.D.K., a Japanese firm. In the production of ceiling fans, the company cooperates with USHA, an Indian firm.

There is no doubt that the cooperative production of this company and the international companies has reached the highest standard of quality and precision. This has enabled the Egyptian company to bolster its technical position, to make things easier for its customers by reducing their maintenance burdens and to market its products rapidly.

The second indication of the success of the Benha Electronics Industry Company is its constant followup of the scientific development movement in the world. To achieve this, the company exerts efforts to secure information by various means and through connections with the international organizations and research centers. The company works to develop its technical cadres by sending missions to visit the international plants in the advanced countries and by making full use of the foreign experts who come to the company. The company also sends workers on scholarships to the specialized domestic administrative and technical institutes to strengthen its managerial cadres. Moreover, the company concluded agreements with the scientific establishments and research centers to develop and improve the products in line with the international development in the sphere of the electronics industry. In fact, a scientific agreement has been concluded between the company and the Cairo University Engineering College in the sphere of communications for the purpose of rural development in Egypt. Agreement has also been reached with the university to organize higher studies in engineering and economics to develop cadres with high technical and managerial skills.

Successful Marketing Efforts Behind Increased Sales

In the sphere of marketing, the Benha Electronics Industry Company has formulated a well-studied policy to market its products at home and abroad.

In the local market, the company has been eager to insure a fair distribution of its products among the various production and consumption sectors and to make sure that the commodity is delivered to the consumer. The marketing department has been successful in providing the most accurate measurements and indicators on the market tendencies and the supply and demand developments to insure marketing the products at the right times.

To familiarize the Egyptian consumer with the company's products, the company has three showrooms for its products. The first is in al-Tahrir Square, the second in Rammis Square and the third in al-Shawaribi Street. This is in addition to the company's other showrooms in a number of governorates.

At the foreign level, the marketing department exerts efforts to open foreign markets for the company's products with the aim of earning more foreign currency and of familiarizing the foreign consumer with the degree of progress realized by our country in the sphere of the electronic industries.

The fourth and final indicator of the Benha Electronic Industries Company's success and of the superiority of its production is its concern for its workers. This concern covers the sphere of training and the sphere of social services.

The company spares no efforts in strengthening the training aspects. It has set up a center with a high standard to train high school graduates for a period of 2 years on the principles of the electronic industry. The center is equipped with the latest laboratories, workshops, lecture halls and the demonstration means necessary for this training. This center has been set up in cooperation with the Ministry of Higher Education. This is in addition to training junior high school graduates to work in the production of electronic equipment. The center also prepares other programs to give the company workers constant training and to raise their production efficiency.

The company also pays attention to the social affairs of its workers. The most important aspects of this attention are:

Comprehensive life insurance for the company workers so that they may face old age and disability cases.

Kindergartens to take care of the workers' children throughout the day.

The organization of recreational picnics for the workers and giving them the opportunity to perform their pilgrimage to Mecca annually under the supervision of the ministry (not further specified).

Free transportation for all the workers to their places of residence in all the governorates adjacent to the plant.

Company's Entire Production Is in Demand

As a result of all these facts, the company has attained a superior economic position. The evidence is:

Increased production, both quantitatively and qualitatively.

An evident increase in the sales volume.

Big improvement in the worker's income, wages and production and his wage-production ratio.

The company's entire production of colored and white and black television sets is completely sold.

The establishment of an incentives system which is unique to the company and which ties increased production to increased wages.

Truly, all this confirms the major miracle made by the successful Egyptian management of the Benha Electronic Industries Company. These are new industrial victories and bright pages in the history of the Egyptian electronics industry.



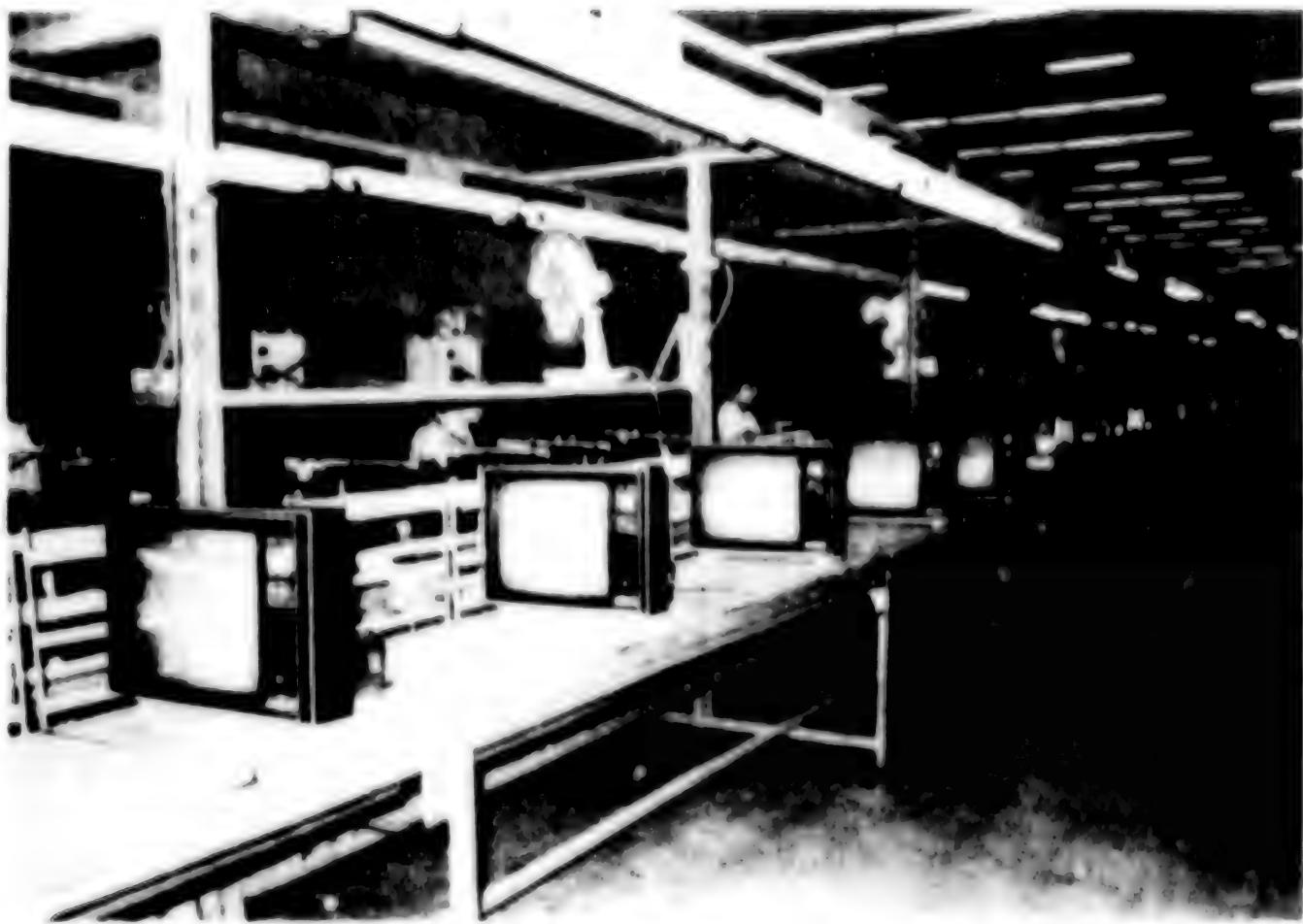
Photo #15: Quality tests done by the latest equipment by a highly-experienced engineer.

Photo #16



Latest drilling equipment for printed circuits.

Photo #17



Television production line for colored model: 20-inch SHARP

Hulwan Non-Ferrous Industries Company

Cairo AKHIR SA'AH in Arabic 8 Oct 80 pp 60-61

[Text] To interview him is to have the outcome of a long experience and of real Egyptian expertise in the sphere of the non-ferrous metal industries. The man is Engineer Qadri al-Laythi who heads the Hulwan non-Ferrous Industries Company which plays a major role in supplying the industrial companies with their needs of raw materials and semi-processed commodities made of copper and copper alloys, aluminum and aluminum alloys and all kinds of non-ferrous alloys.

If the struggle of the Hulwan non-Ferrous Industries Company has enabled it to gain an international reputation for its serious and fruitful work, then this struggle also reflects a story abounding with technical accomplishments and with honorable scientific and practical stances. With its distinguished fabric, this company reflects the Egyptian man's readiness for development and his ability to overcome difficulties and to face challenges in order to realize still more progress on the path of prosperity, abundance and welfare.

Story of Long Struggle

Engineer Qadri al-Laythi, the chairman of the Board of Directors of the Hulwan non-Ferrous Industries Company, recounts to us the story of the company's struggle, saying:

The company has not stood idle in the face of any industrial development. It started its first steps with the construction of the units for melting and casting copper, aluminum and copper and aluminum alloys.

The melting and casting sections, in addition to the horizontal hydraulic pressing section, the cold sheet rolling section and the pipe and rod rolling sections, formed a strong initial base to meet the needs of the sister companies in the war plants and the needs of the war production only. To realize the efforts for developing the national economy, it was natural to establish industrial integration between the company and all the state plants in order to overcome the bottlenecks and to create an alternative to the foreign factories in supplying the needs. The company thus became the first pioneer in the Middle East in the sphere of the non-ferrous industries.

Company Produced High Dam Cables

[Question] What is the company's current position and how important is it to the other state sectors?

[Answer] The company now has numerous and diverse plants that produce cables and aerial and insulated conductors of all dimensions which have contributed to the implementation of numerous electricity sector projects, especially the high tension network which has been conveying the High Dam electricity to all parts of the republic. The company has also participated in supplying the Rural Electrification Authority with electricity conductors for all the villages.

The company further produces aluminum plates and aluminum alloys and copper plates and copper alloys through the process of heat rolling which makes it possible to manufacture diverse and precise products of all the needed dimensions and of high quality.

Agricultural Wealth and Food Security

(The company chairman added:) It is to be noted favorably that the Hulwan non-Ferrous Industries Company has been and is still supplying all the requirements of the irrigation equipment, such as piping, coupling parts and sprinklers. The company concluded an agreement with the U.S. (Wren Bird) Company through which it acquired a license in the 1960's to produce such equipment. This production contributed to designing the sprinkler irrigation project in al-Tahrir Province which was implemented by the Ministry of Land Reclamation. It has also added a new understanding and dimension of such uses in the present time, keeping in mind that the company's production capacity is enough to meet the needs of sprinkler irrigation projects in an area of nearly 40,000 feddans. The company is currently working to develop and increase the production of the sprinkler irrigation equipment so that the production may be enough to meet the needs of irrigating 80,000 feddans by sprinkling. This is being done in order that we may keep up pace with the international development and may bring about implementation of the general policy advocated by President al-Sadat in the spheres of food security and of enlarging the arable area in Egypt.

The importance of employing the system of irrigation by sprinkling is made obvious by the following:

The possibility of irrigating lands with uneven contours.

The economical use of water so as to realize the policy of streamlining the use of irrigation water.

Increased production.

The spraying of pesticides and of fertilizers by melting them in the irrigation water.

Saving labor.

Avoiding the construction of irrigation ditches and drainage canals.

Cooling the atmospheric temperature.

Finally, the company produces colored, waxed and paper-plated aluminum sheets of a thickness of 8 microns for packaging cigarettes, candies and foodstuffs.

The company has been eager to follow the family slogan as its course. It has also been eager to provide the means of social welfare by building a special club for the company which includes all kinds of sports, in addition to providing special vehicles to transport the workers from their places of gathering to their

places of work in the plant. Moreover, the company has given the workers ownership of the houses which it built for them. A cooperative has also been set up for the plant workers to supply their needs at reasonable prices. This has encouraged all the workers to exert maximum efforts for a better future and for lasting prosperity.

This is a quick glimpse of the activities of the Hulwan non-Ferrous Industries Company in the spheres of production (for domestic consumption and for exportation). These are vast accomplishments that contribute to building the society of love, peace, abundance and prosperity.

Our Production

Aerial aluminum electricity conductors of all dimensions.

Insulated electricity conductors of all dimensions.

Aluminum sheets with measurements of 1x3 meters and a thickness of 0.5 millimeters.

Aluminum (rolls) with a width of up to one meter and a thickness of 0.5 millimeters.

Colored, waxed and paper-plated aluminum sheets of a thickness of up to 0.008 millimeters.

Corrugated aluminum plates.

Round, six-sided and four-sided rods of copper and copper alloys and of aluminum and aluminum alloys.

Condenser and cooler piping made of various alloys.

Copper and aluminum welding wires.

Bronze (plates and platters).

Small and big (sand) ingots and pressurized alloys.

Heat rolled copper sheets.

Complete sprinkler irrigation equipment.

Telephone and streetcar wires according to the international specifications.

Cutters made of copper and aluminum alloys.

Manpower and Production Development

Fiscal Year	Number of Workers	Production in Tons	Production Value in 1,000 Pounds
1954-55	450	90	25
1958-59	850	3,550	1,160
1962-63	1,740	7,000	2,600
1966-67	2,400	11,000	5,300
1970-71	2,600	13,000	9,000
1975	2,300	22,000	22,600
1980	4,000	32,000	40,000

Al-Ma'sarah Industries Company

Cairo AKHIR SA'AH in Arabic 8 Oct 80 pp 44-45

[Text] In every city, village, street, home workshop, shop and means of transportation, we find its name and its products on every tongue. It is al-Ma'sarah Engineering Industries Company which produces for us modern water and electricity meters, the axle boxes for railroad passenger and freight cars and the (tying and rollman pulley) equipment.

What do you know about al-Ma'sarah Engineering Industries Company? What about its history and the history of its modern products? What are the foreign markets that demand its production?

If we want to know the enormous role that al-Ma'sarah Engineering Industries Company plays, we must take a quick pause to familiarize ourselves with its products which participate in serving the spheres of housing. The company produces:

Modern water meters on a license from the West German (Andrea) Company. This meter is suitable for installation in hot climates because it can withstand the passage of water with a temperature of 50 degrees centigrade [celsius]. This meter is of the super multi-jet type. The plant's production capacity is 125,000 meters annually. The meters [water] discharge rate is 3, 5, 7, 10, and 20 [cubic] meters per hour.

Electricity meters are produced on a license from the Swiss (Landzuger) Company. This production has been expanded to raise the capacity to 330,000 meters annually. The production consists of the single-sided 10-40 ampere meter and the three-sided 10-40 ampere 220/380 volt meters of the M.G. 17E type.

In the sphere of transportation and shipping, the company produces:

Axle boxes for railroad freight cars with a load capacity of 10 tons or 65 tons and for passenger cars.

The annual production is 3,000 (boxes annually, produced on a license from the West German FAG Company.

Tying products: The company produces annually 900 tons of tying products made of soft [sic] steel, copper and aluminum. The kinds of these nails [tying products] are:

Six-sided nails, screw nails for wood made of iron and of various kinds of copper.

Plated and thermally treated iron sheet nails with cylindrical, grooved, oval and round heads.

Various kinds of screws.

Thermally treated (susta) washers of sizes of one fourth an inch up to one inch.

Railroad cranes [rawafi'] and equipment of various kinds.

Rollman pulleys produced on a license from the West German FAG Company. The annual production capacity is 250,000 units of the deep groove single row type.

Psychological Stability for Workers and Increased Production

Now that AKHIR SA'AH has introduced the company's products, it will let Engineer Faruq al-Murshidi, the company chairman, recount the company's history and the development of its products. The man says:

Al-Ma'sarah Engineering Industries Company was set up as a part of the war production sector in 1952. To utilize some surplus capacities, the company started to produce some engineering products, represented in water and electricity meters, tying products and requirements of railroad cars.

The company production is moving in long and rapid strides to meet the local market needs, in addition to the needs of the Arab and African markets. This development is the result of my full belief in the principle of realizing psychological, material and social stability for the company workers because such stability is the primary basis of success, accomplishment and development, especially in the industrial sector.

This is why the company offers nearly 4,000 workers comprising its entire workforce, social services, the most important of which are housing, transportation, medical care, top-level training and incentives that are not available in any other company. This is in addition to the fact that the company pays the childcare fees for the children of the company's female workers.

Sudan Requests Water Meters

I asked engineer Faruq al-Murshidi about the latest export developments concerning the company products. The chairman of the Board of Directors answered:

The civilian production, especially the modern water and electricity meters, are exported to the Arab and African countries. These products have passed the quality and international standard tests after being tried in the water and electricity networks of these countries.

The company is currently in the process of concluding a contract with the fraternal republic of Sudan for supplying 100,000 modern water meters suitable for use in hot climates. The value of this contract is nearly 1.2 million pounds Sterling or the equivalent of 1.9 million Egyptian pounds. There are other offers to supply these meters to the Republics of Somalia and Kenya after these countries complete trying and testing the Egyptian production.

From this quick review of the company's products and of their uses in Egypt and abroad, we can say that al-Ma'sarah Engineering Industries Company has realized an industrial revolution that contributes positively to bolstering our country's national economy.

Al-Ma'adi Engineering Industries Plant

Cairo AKHIR SA'AH in Arabic 8 Oct 80 pp 50-51

[Text] AKHIR SA'AH has spent a full day visiting al-Ma'adi Engineering Industries Plant.

The magazine has lived with the genuine Egyptian expertise that is running tens, rather, hundreds of pieces of massive workshop machines and equipment.

AKHIR SA'AH has followed all the phases of the production which the company puts out to serve all the sectors that you can think of.

At the end of its tour, the magazine interviewed Engineer Anwar Mahmud Shuqayr, the chairman of the Board of Directors of al-Ma'adi Engineering Industries Company, who has said verbatim:

The diverse production put out by the company's workshops and equipment, whether military or civilian production, has opened broad spheres in the field of the engineering industries and has created a new generation of highly experienced and specialized workers.

From these plants which contain large numbers of experts that have attained the highest degree of precision and accuracy in production emerge every day and every hour commodities that find their way to your home and your factory--commodities for your car, others to satisfy your athletic hobby and yet others that serve the medical care offered by the public clinics and hospitals.

What Does This Production Mean?

Here, Engineer Shugayr poses a little and then begins to explain the details and goals of the production, saying:

For the housewife, the company's plants produce the sewing machine carrying the name of Nefertiti which rivals in quality the best sewing machines produced by the international companies for home use. We should keep in mind that all the parts of this machine are manufactured 100 percent in the company's plants and with pure Egyptian labor.

In addition to the sewing machine, al-Ma'adi Company plants produce meat grinders, can openers, kitchen knives and scissors that are of a very high quality and very safe.

To spread athletic awareness, the company produces cartridge hunting rifles, marksmanship training rifles, guard rifles and air pressure rifles. All of these are precise engineering products that require high skills.

For medicine and doctors, the company has entered the sphere of surgery to produce surgical and medical equipment, such as scalpels, boiling pans and medical scissors of all sizes and shapes and anesthetic equipment for public hospitals and clinics.

The company also produces for the major Egyptian workshops and factories a number of general products, such as (al-baraghil, al-bunt and metal cutter knives), all of which are extremely important in the sphere of industrial production.

In view of the importance of the transportation and shipping sector, the company has contributed to the car industry with its complementary products, such as radiators for all kinds of vehicles and tractors and (serpentines) to bolster this vital sector in the country.

Engineer Shuqayr concluded his statements saying:

In view of the high technical experience gained by their workers, al-Ma'adi Company plants produce all the engineering products needed by the other factories with the aim of bolstering the industrial sphere. The company plants have thus realized their national goals for a society dominated by peace and prosperity.

8494
CSO: 4802

DIRECTORY OF THE GOVERNMENT, PUBLIC SECTOR

Cairo MODERN ARAB PUBLISHING HOUSE FOR FOREIGN TRADE in English 1980 pp 121-125

(Excerpts) War Plants

1. Hulwan Castings Co. - Mil. & Civilian (formerly War Plant 9)

- pig iron castings
- grey pig iron
- iron castings
- fine castings

2. Abu Za'bal Co. for Specializing Chemicals (formerly WP 18)

- Medical ether
- Cooking Oil
- Nitrocellulose
- Sulphuric acid
- Nitric acid
- Stearic acid
- Aniline
- Down
- Bleached cotton

3. Shubra Engineering Industries Co. (formerly WP 27)

- Motors
- Electric fans
- Switches and wall outlets (or plugs)
- Wheelsprockets
- Punches
- Safety pins
- Hunting shells

4. Al-Ma'sarah Engineering Industries Co. (formerly WP 45)

- nails and screws
- water meters
- fastening equipment
- axle boxes
- copper bases for light bulbs
- Rolman Ball (? - phon.)
- Electric meters

5. Al-Ma'adi Engineering Industries Co. (formerly WP 54)

- Sewing machines (Nefertiti)
- meat grinders
- can openers and general cutting implements
- drills
- kitchen knives, scissors, scalpels
- training, hunting and air rifles
- hypodermics

6. Hulwan non-Ferrous Industries Co. (formerly WP 63)

- aerial & insulated cables
- zinc plates for batteries
- mold castings by pressure and gravitation
- various aluminum and copper sections
- phosphor bronze
- aluminum lamellae
- flat & curved copper plates
- pipes, rods and sections of brass, copper and aluminum
- white alloys according to specifications
- condenser pipes of various types
- meat skewers
- copper, bronze, & aluminum strips
- copper alloys
- zinc alloys
- irrigation sprinklers

7. Heliopolis Chemical Industries Co. (formerly WP 81)

- paints
- adhesives
- dry fuels
- plastic, rubber & metal products
- string
- gas masks

8. Hulwan Engineering Industries Co. (formerly WP 99)

- fire-fighting equipment
- benzine & solar pumps
- butagas tanks
- stainless steel tableware

9. Abu Qir Engineering Industries Co.

- mechanical toys
- medicine containers
- food preservative tins
- hunting shells

10. Benha Electronic Industries Co.

- radio & TV sets
- electronic equipment
- electrical instruments & spare parts

11. Qaha Chemical Industries Co. (formerly WP 270)

- dry (cell) batteries
- fireworks
- zippers
- luggage locks
- knapsacks
- detonators for hunting

12. Hulwan Diesel Motors Co. (formerly WP 909)

- diesel motors
- units for raising water
- tractors & agr. machinery
- lighting, welding and air pressure units
- marine units

13. Hulwan Workshop Machinery Co. (formerly WP 999)

- lathes, sharpening machines & scrapers

14. Hulwan Home Appliances Co. (formerly WP 360)

- fridges
- butagas boilers
- heaters
- stoves (elec. & butagas)

15. Abu Za'bal Engineering Industries Co.

CSO: 4820

EGYPT

ARAB INDUSTRIALIZATION AUTHORITY: EGYPTIAN COMPANIES DIRECTORY

London THE MIDDLE EAST OBSERVER (Supplement) in English 1981 p 62

[Article: Arab Industrialization Authority: Egyptian Companies Directory
(private and public sectors): Ahmad Zindu, chairman]

- [Excerpts] 1. Factory No 33--Ahmad Ihsan, Chairman.
2. Factory No 135--Hilmi Amin, Chairman.
3. Factory (Kader) No 72--Mahmud Shukri, Chairman.
4. Factory No 333 (Saqr)--Hasan Fahmi, Chairman.

CBO: 4820

BACKGROUND INFORMATION ON ARAB ORGANIZATION FOR INDUSTRY (AOI)

Paris LE MONDE DIPLOMATIQUE in French Oct 80 p 6

[Article by Raimo Vayrynen, professor of international relations at Helsinki University: "Technological and Financial Dependence; Slow Construction of the Egyptian Military Industry"]

[Text] From the Maghreb to the Horn of Africa, from the Near East to the Gulf, what recent events have not had repercussions in Egypt, a place where so many strategic, political and economic interests become entangled with one another? But it is above all the Israeli-Arab conflict, in which this country has played a leading role for some time, that was bound to influence its diplomatic and defense policies. In this confrontation she was forced to initiate a policy of maximum armaments, intended to insure her survival: buying military equipment abroad--often with financial aid from other Arab countries--while at the same time endeavoring to develop her own armament industry.

When, in 1955, the West refused the arms that Nasser requested, the Soviets stepped into their place, furnishing military aid to Egypt to the tune of \$3 billion for the next 20 years. These conditions were very advantageous, with gifts estimated at nearly 40 percent of the total. The country's indebtedness was nevertheless badly compounded by all this, even though these particular debts were not to be reimbursed.

Egyptian imports of military materiel reached a peak in 1973, year when they amounted to \$1,074 million, after which a decline set in. From 1973 to 1977 Cairo imported \$1,748 million worth of arms, of which \$1,200 million came from the USSR.¹ The increase in the bill compared to the 1960's can be explained not only by the increase in the quantities purchased but also by the increased modernization of the armament systems. The Soviets had begun to furnish modern materiel to the Egyptians since the beginning of the 1960's; after the 1967 war with Israel, however, the arms race took on new dimensions, including a constant effort toward modernization.

The turning point was reached in the middle of the 1970's, when Egypt gradually turned away from its Soviet supplier, calling increasingly upon the United States. During a transition period, France and to a lesser extent Great Britain gave crucial help to improve Egypt's military capacity. But it was not until 1978 that

the United States began its big shipments, including, among other things, squadrons of modern fighter planes. Only recently a prospective sale of F-15 planes by McDonnell Douglas was being announced, to which were shortly added some Hawk antiaircraft missiles produced by Raytheon, M-113 armored troop transport vehicles constructed by Ford, as well as F-14 McDonnell Douglas Phantoms.² Spread over 5 years, the American aid to Egypt amounted to a total of \$4 billion.

Despite this considerable dependence on imports, Egypt had already acquired its own military industry. The aeronautical factory of Hulwan was established in the 1950's to build training and combat jet planes. It began by producing under license some De Havilland Vampires, while developing several models of fighter planes. In this category, the first HA-200 came out in 1960. Whereas in the 1950's the personnel employed in that factory amounted to 5,000 people, they now appear to total 4,000. In the interest of parallel integration, the motor factory of Hulwan was established, specializing in the design and production of airplane engines.

Since 1963 the Saqr factory has specialized in the design and production of unguided rockets, while at the same time attempting to initiate plans for guided ground-to-ground missiles. It employs a total of 5,000 persons. The Kader factory--the smallest--is nevertheless pursuing several programs, including the Waleed armored troop transport, based partly on the technology of Magirus Deutz.

Between the four of them, these factories constitute the skeleton of the Egyptian military industry, which has nevertheless progressed only slowly. In the first place, Egyptian industry was heavily dependent upon foreign technology. For example, the HA-200 was built on the basis of the Spanish Saeta HA-200, produced by the Hispano firm. Two hundred planes of this type were produced under license at Hulwan between 1960 and 1969. Like the supersonic HA-300 which the Hulwan factory is currently putting into production, the HA-200 was originally conceived by Willy Messerschmidt during the 1950's, at a time when he was working in Spain.

The Turning Point of 1973

Not only does Egypt lack technically qualified personnel, but she is usually ill provided with capital. Programs have had to be slowed down and even stopped for lack of credits. The industry had nevertheless acquired a certain technological capacity when, in the 1960's, it was faced with the necessity of servicing and improving upon the military equipment furnished by the Soviets. Thus, the Saqr factory had to progressively convert its activities to the manufacture of a varied assortment of artillery rockets of Soviet origin, usually simple copies of models previously delivered, produced without a license. The Hulwan factory, on the other hand, began to produce parts destined for the engines that would be put into Soviet-furnished planes.⁴ Egypt had become more and more dependent on Soviet military technology, particularly so because the West was practically boycotting her, refusing to provide her with arms and with the military technology which usually accompanies them.

The political upheaval which followed the 1973 war forced the Egyptians to look for other sources of military equipment. While finding some new suppliers in the West, the Egyptians advocated a regional formula which achieved concrete expression in the Arab Organization for Industry (AOI) in 1975. The idea of a military industry common to all Arab countries had been expressed for the first time in 1972 at a meeting of the chiefs-of-staff of 18 Arab countries. It was originally an ambitious project, providing for a contribution by each country of 2 percent of the gross national product.

In 1974 the Arab Council for Defense proposed a more modest financial base of \$1.2 billion for the total common military production. Finally only four Arab countries--Saudi Arabia, Egypt, the United Arab Emirates, and Qatar--decided to participate. The Egyptians, for their part, had to put at the disposal of the enterprise six armament production factories, including those already mentioned, while the three other partners committed themselves to contributing an initial capital of \$1.04 billion. The AOI was thus founded on the basis of a division of labor whereby the Egyptians brought their infrastructure, technology and manpower--all of which their partners lacked--while the oil exporting countries offered their capital, which Egypt did not have. The enterprise aimed to insure the production of armaments at minimum cost, to promote the export of the surplus to other Muslim countries--particularly Pakistan--and to transform Egypt into a great producer and exporter of armaments.⁵

Since Egypt did not have all the necessary technological capacity, the AOI had to call upon the multinational armament corporations. Most of the contracts for imports and production under license were not signed until the end of the 1970's, but the general lines of this cooperation had been sketched much earlier. Thus, as early as 1974, Egypt, Saudi Arabia, France and Great Britain had agreed to produce Lynx WG-13 helicopters under license in the Hulwan factory. Among the companies associated under the contract, originally valued at 110 million francs, were Westland the National Society for Aerospace Industry.⁶ This cooperation between the AOI and European multinational arms manufacturers was subsequently intensified, leading to several other agreements which involved on a more or less equal basis French and British companies, whose relations to each other were characterized by a mixture of collaboration and mutual rivalry. The French government tried to improve the competitive position of "its own" companies by arranging for commercialization schemes on various fronts, thanks to political contacts at high levels of the Egyptian cadres.⁷ American companies were kept strictly out of this competition.

One of the main characteristics of the projects involved in the contracts between the AOI and its multinational partners (see table below) was that they were all founded as joint ventures in which the Arab organization held a controlling share. On the other hand, these projects depended almost entirely on technology furnished by the participating multinational corporations, including the experts which the latter put in charge of its application. Thus the SNECMA provided for the project of the Arab French Engine Company (AFECO) 35 specialists--that is 90 percent of the necessary personnel.⁸ On the other hand, the AOI was anxious to train its own staffs to take over the tasks of management, technical realization

and production--a necessary condition for long-term autonomy in the production of military materiel. In 1978 there were thus some 2,500 persons finishing up their training in the United States and in Europe. The provision of training had been included within the contracts for technological aid and capital with regard to the projects undertaken by the AOI.⁹

With the same aim in mind, the AOI formed an Arab Institute for Aerospacial Technology, located in Cairo and benefiting from the help of American, French and British experts. The Saudi Arabian Institute for Technical Studies in Dhahran also offers courses in aerospacial engineering, most of the time thanks to contracts concluded between the British and Saudi Arabian governments. The first of these was signed in 1973, and renewed in 1977 for 4 more years.¹⁰

After the peace treaty between Egypt and Israel, the 1978 Baghdad summit decided upon an economic boycott of Egypt by all Arab countries. Prince Sultan Bin-Abdel Aziz, Saudi minister of defense, soon announced the main result of this decision on the military plane: the dissolution of the AOI and of all joint ventures as of 1 July 1978, an end to all investments, and the immediate annulment of all pending contracts. Saudi Arabia, for its part, decided to withdraw all its funds from the AOI, whose liquidation was entrusted to a special committee. In fact, the dissolution of this organization was not only a consequence of the Camp David accord. In the background one could discern some lack of harmony between the financial and military interests of Egypt and those of other Arab participants.¹¹

A financial crisis followed, as Egypt did not have the necessary resources to continue to finance the projects. It seems that most of the AOI projects have been abandoned, while other solutions have sometimes been considered. The multi-national corporations participating in these enterprises sometimes suffered financial losses which were in part compensated by new orders from, for example, Saudi Arabia and Qatar.¹² Egypt kept equipment and mechanical materiel representing hundreds of millions of dollars, which were never given back to Saudi Arabia. Thanks to these resources, President Sadat was able to announce that the activities of the AOI would be pursued under the auspices of the Egyptian Organization of Military Industrialization.

Both on its own initiative and under the pressure of events, Egypt has become an important ally of the United States in the Near East. She sends military advisers and arms to pro-western African countries; she trains rebel Muslim Afghans, and puts at the disposal of American forces certain military facilities, such as the Wadi-Kenna airfields. In exchange, the United States is doing its best to reinforce the stability of President Sadat's regime within the framework of its global political and military strategy in the region. The Carter government also furnishes considerable economic and military aid to bolster Egypt's position.¹³

Teams of specialists from the Pentagon have succeeded each other in Egypt to devise ways of putting a portion of the budget to the service of the country's military industry.¹⁴ This increasing American commitment in Egypt is now taken into account by multinational arms manufacturers who, in risking to sign agreements of joint production with Egyptian partners, are taking the place of European firms. As has already happened in all the other sectors, Egyptian

military industry is going to turn more and more to American technology and capital. But until now the only American firm operating in the military sector is American Motors, engaged in the production of jeeps for the army.

Having currently at its disposal some 15,000 specialized workers and a new multinational channel which provides her with both advanced military technology and American capital, Egypt has chosen to pursue its production activities on the momentum of the AOI.

Following missions of American experts, plans have been made to order production, in Egyptian factories, of Northrup F-5 planes instead of the Alpha jets, and of Bell 214-ST helicopters instead of the Lynx,¹⁵ for Western European companies have neither the sufficient resources nor the desire to pursue their activities in Egypt without the support of Saudi Arabia.

These new contracts signed with American companies conformed with the policy of President Sadat, who had declared that Egypt would "turn toward the American people to ask for help" to compensate for the negative consequences of "The corrupt policy of the Saudis," who had persuaded the Arab nations to break relations with Egypt.¹⁶ The annulment of contracts with certain Western European companies concluded under the aegis of the AOI was a rude shock to most of the former, who had already experienced difficulties resulting from the loss of the Iranian market. Hence they found themselves in the necessity of seeking other markets both in the Near East (notably in Iraq) and in other regions.

As for the Egyptian economy, there is no doubt that the production of military materiel has contributed to an improvement in the technological capacities of the factories directly involved. The ultimate objective of the AOI was an autonomous capacity of production of armaments and military technology; but in this matter there is no proof of a real reinforcement of independence, partly for lack of time. Egypt remains dependent on foreign military technology which is controlled by multinational corporations. This is so not only in the matter of electronic motors--a "traditional" bottleneck--but in a more general way.¹⁷ There is, furthermore, very little likelihood that activities pertinent to military industry will have repercussions in civilian industry. For the factories of the AOI were isolated from civilian industries. In the days of Soviet aid as in the days of the AOI, they were bridgeheads of foreign technology rather than poles of activity integrated in the domestic economy.

FOOTNOTES

1. Cf. On this subject Roger Paja, "Soviet Arms and Egypt," SURVIVAL, No 4, 1975. The figures quoted are from WORLD MILITARY EXPENDITURES AND ARMS TRANSFERS, 1968-1977, Washington DC, 1979 (p 127)
2. INTERNATIONAL HERALD TRIBUNE, 25 Feb 1980
3. FLIGHT INTERNATIONAL, 23 Sep 1978 p 1148

4. Robert Ropelewski, "Management: Improvisation Key to Egyptian Growth," AVIATION WEEK AND SPACE TECHNOLOGY (referred to subsequently as AWST), 13 Nov 1978
5. FLIGHT INTERNATIONAL, 7 Jan 1978. On Arab industrial organization, see Michael Moodie, "Sovereignty, Security and Arms," WASHINGTON PAPERS, 67, Beverly Hills, 1979.
6. LE MONDE, 9 Oct 1974
7. See, for instance, AWST 22 Dec 1975, (p 37) and 17 Jan 1977, (p 16)
8. LE MONDE, 3 Aug 1978
9. Robert Ropelewski, "Arabs Seek Arms Sufficiency," AWST 15 May 1978, (p 14)
10. Cf. ibid. and FLIGHT INTERNATIONAL 10 Apr 1977, (pp 1046-1047) and 24 Jun 1978, (pp 1939-1940)
11. Cf., for instance, John Whelan, "Treaty Leads To Restructuring of Arab Weapons Industry," INTERNATIONAL HERALD TRIBUNE, special edition Jun 1979; see also NEW YORK TIMES 15 May 1979, and AWST 21 May 1979, (p 22)
12. Cf. LE MONDE 16 May 1979, and THE ECONOMIST 12 Jan 1980, (p 88)
13. Cf. INTERNATIONAL HERALD TRIBUNE 10 Jan and 14 Feb 1980
14. THE ECONOMIST 7 Apr 1979 (p 18) WASHINGTON POST 6 Jun 1979 (p A19) AWST 13 Aug 1979 (p 13)
15. INTERNATIONAL HERALD TRIBUNE 31 Mar 1980, and special edition on Egypt Jun 1980
16. Cf. John Whelan op. cit.
17. See, for instance, Robert Ropelewski op. cit.

Projects Undertaken Under the Sponsorship of the Arab Industrial Organization (AOI)

<u>Joint Corporations</u>	<u>Type of Production</u>	<u>Date</u>	<u>Total Value</u>	<u>Participants</u>
Arab-British Helicopter Co	280 WG-13 Lynx helicopters	not specified	330 million pounds sterling	AOI 70 percent Westland 30 percent
Arab-British Engine Co (ABECO)	750 GEM engines for WG-13 Lynx	Feb 1978	\$205 million	AOI 70 percent Rolls Royce 30 percent
The Arab-French Aircraft Co	160 Alpha jets	Sep 1978	figure not available	AOI, Dassault-Breguet, Dornier
Arab-British Dynamics Co	several thousand Swingfire antitank missiles	Dec 1977	\$75 million	AOI 70 percent British Aerospace Corp 30 percent
Arab-French Engine Co (AFECO)	Larzac and SNECMA M-53 engines for Alpha jets	Nov 1978	figures not available	AOI 70 percent SNECMA 30 percent
Arab-Electronics Co	military electronic equipment	1978	figures not available	AOI 70 percent CSF-Thomson 30 percent
Arab-American Vehicle Co	12,000 jeeps	1978	\$30-35 million (estimated)	AOI, American Motors Corp

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